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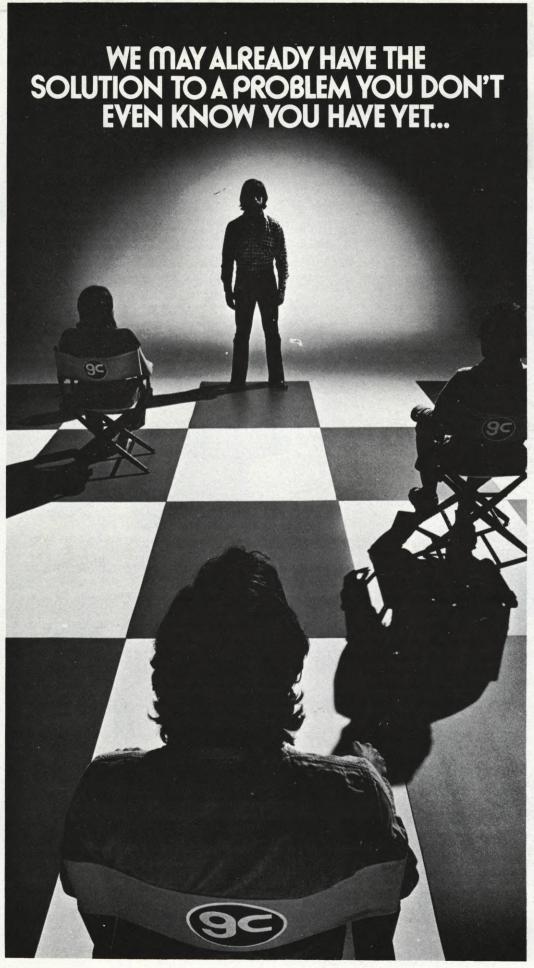
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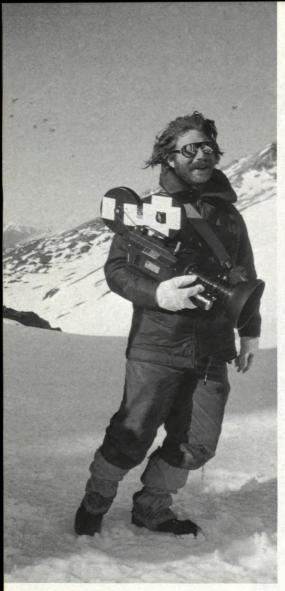
Owen Roizman

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ON THE COVER: Fanciful art logo background for the Columbia/EMI Presentation, "CLOSE ENCOUNTERS OF THE THIRD KIND", Produced by Julia Phillips and Michael Phillips, Written and Directed by Steven Spielberg, Music by John Williams, Visual Effects by Douglas Trumbull, Director of Photography Vilmos Zsigmond, ASC. Color illustration courtesy of Columbia Pictures.

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"Silence in the Yukon is the most total I have ever experienced, quieter than any sound studio... Our voices would echo back and forth for miles. Shooting sync-sound at close range was especially demanding, but the CP-16R was wonderfully quiet."

Eric S. Camiel
Cinematographer

YUKON PASSAGE

The National Geographic Specials are produced for the Public Broadcasting Service by the National Geographic Society and WQED/Pittsburgh with a grant from the Gulf Oil Corporation.

- Dennis B. Kane and Thomas Skinner, executive producers.
- Roy Brubaker,
- in charge of production.
- Linda Reavely, post-production supervisor.
- Jim Lipscomb, producer/writer/director.

First broadcast on PBS: December 5, 1977.

For more than 100 days, award-winning filmmaker Eric Camiel and his CP-16R kept constant company, filming the ordeal of four men as they retraced the route of the great Klondike Gold Rush of 1898 for "Yukon Passage," a National Geographic television special, co-produced with WQED/Pittsburgh.

"For three and a half months, my CP-16R was my constant companion as we froze and sweated, climbed and fell, working at the limits of fatigue and physical endurance to film the route of the great Klondike Gold Rush of '98," says cinematographer Eric Camiel.

"We hiked over the Chilkoot Pass, 34 miles on foot, over snow and rock. Then we camped at Lake Bennett, in the Yukon Territory (part of a vast semiarctic region in northwest Canada), the staging area for the raft trip down the Yukon River. There we filmed for three weeks as the four men logged a mountainside, ran the logs down the rapids, and built their raft.

"The raft was rigged with a big canvas squaresail for sailing the 200 miles of lakes to get to the river proper. Riding the spring flood at six knots, we drifted, smashed, and ground our way to the heart of Gold Rush Country, where the Yukon and Klondike rivers meet: Dawson City, a major boom town during the Klondike Gold Rush. From there we rafted down the Yukon River till the

freeze-up, and then out by dog sled.

"The CP-16R was used for three and a half months in the wilderness, shooting over a hundred 400' rolls of 7247 color negative, operating in a temperature range of 10° to 95°F with no problems," says Eric Camiel. "It ran seven to nine magazines per NC-4 battery, even in cold weather."



Camiel being helped to camera position up the bank. "No wonder the camera fell so often..." says Camiel.

Photographs by David Clark, Jerry Wallace and Robert Clark



"Dollying" across on a cable to film the running of the rapids.



Bringing logs for the raft downstream.

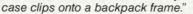


Lake Laberge, Yukon Territory. Paul Crews, member of the 4-man raft crew, and Eric Camiel (filming) on the raft. The CP-16R is protected by a special CP raincover. The sudden storms on this lake claimed the lives of many men in 1898.



little special equipment used, says Camiel.
"I did build a lightweight waterproof padded case that holds the camera, in a ready-to-shoot format, plus accessories. The camera goes in and out easily, and the frame."

'There was very





Left to right: Cinematographer Eric Camiel, producer/writer/director Jim Lipscomb and soundman David Clark. "Yukon Passage" was shot double system with Nagra sound recording equipment.

# "Like a cat with nine lives, the CP-16R kept on shooting despite the incredible abuse to which it was subjected."

"The weather was quite erratic, with frequent rain squalls, and the CP raincover had to go on and off several times a day.

"The camera was dropped three times, once sliding forty feet down a snow bank. Occasionally it got wet with spray and rain. Each time, I just dried it off and kept shooting.

"Once, while I was changing magazines, the wind blew sand into the open camera. I cleaned it out and kept shooting. The worst problem, though, was the fine abrasive dust that filled the air any time we were near the gravel-paved roads. It got into everything, and eventually ruined my lens. Still, the camera kept shooting.

"I was really amazed that the camera kept functioning through it all. Like a cat with nine lives, the CP-16R just kept on shooting despite the incredible abuse to which it was subjected."

# "I know of no other camera that could have served me as well."

"Silence in the Yukon is the most total I have ever experienced, quieter than any sound studio. No cars, no airplanes, no insects — nothing but silence. Our voices would echo back and forth for miles. Shooting sync-sound at close range was especially demanding, but the CP-16R was wonderfully quiet.

"Inevitably in this type of filming, there is a lot of waiting, the camera on your shoulder or by your side, ready to shoot. The ability to put the camera down safely, and grab it and start shooting immediately is crucial. The second saved in getting the camera to your eye and

turned on is often the crucial second that gets the all-important start of the action on film. The CP-16R with its plug-in battery, broad flat camera bottom and convenient handle placement proved extremely handy under these conditions. The camera balances beautifully on my shoulder, and I can easily hold it there for a 400' take.

"I know of no other camera that could have served me as well. The rugged reliability of the CP-16R, and the confidence it inspired in me, allowed me to take chances far away from any backup camera, risking the CP-16R to get a shot in situations where I wouldn't have dared to go with other cameras. And it shows directly in the quality of the finished film, not just in spectacular shots and difficult camera angles, but in the amount of detailed coverage that the camera encouraged me to get: the type of material that makes a film come alive."



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# CINEMA WORKSHOP By ANTON WILSON

#### SHUTTERS

Most light meters are calibrated on the basis of a motion picture camera having a shutter opening of 180 degrees. One revolution of the shutter is 360 degrees, so a 180-degree opening means that the shutter is open for exactly one-half-acycle and closed for the remaining one-half. This yields an exposure time of 1/48 second at 24 fps. However, not all cameras employ a 180-degree shutter.

The closed portion of the cycle allows the film to be advanced and registered precisely. The shutter can open only after the film has come to a complete halt and must close before the film begins to move to the next frame. The camera designer would theoretically like to have as large a shutter opening as possible. This

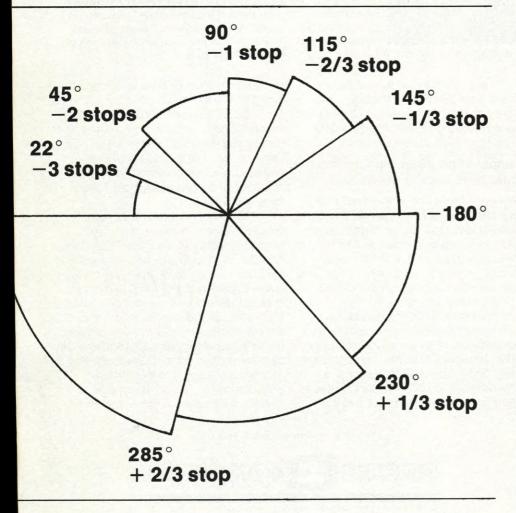
would increase exposure time and be most helpful in low-light situations. There are several cameras that do employ shutter openings larger than 180 degrees. A shutter opening of 230 degrees will yield an exposure increase of 1/3-stop, while a 2/3-stop exposure increase will result from a 285-degree shutter.

There is, of course, a definite tradeoff. In the case of a 285-degree shutter, the film must be advanced and registered in the remaining 75 degrees of the cycle (285° + 75° = 360°). Since the more conventional 180-degree shutter provides 180 degrees of cycle for pull-down, the 285-degree camera must advance the film almost two-and-a-half times faster than the 180-degree cam-

era. Obviously, this requires greatly increasing the velocity and acceleration of the film during pulldown, which not only places greater stress on both the camera movement and the film, but also jeopardizes a steady image. Other factors will also be adversely affected. For example, the noise level of the camera will increase. In the case of a noiseless-type camera, the designer would then be faced with employing extra noise dampening techniques in order to maintain a particular level of quietness. This would undoubtedly result in a larger and heavier camera. A quicker pulldown would most likely cause accelerated camera wear, requiring more frequent service.

After considering all these factors, most camera designers feel the drawbacks of the large shutter opening are not worth the 1/4-to-1/2-stop exposure increase and opt for the more conventional 180-degree shutter. As a matter of fact, many designers go one step farther. A great number of cameras employ shutter openings significantly less than 180 degrees. Openings of 144 degrees to 170 degrees are very common, especially among 16mm cameras. The resulting exposure loss is usually under 1/3-stop and typically less than 1/5-stop. The designer feels that reduction in exposure is usually not objectionalbe and yet it buys him a quieter and usually steadier camera movement. The cinematographer should check his camera specifications carefully. The odds are very good that his so-called 180-degree shutter may be missing a few degrees here or there.

FIGURE 1-Exposure Increase or Decrease Relative to a 180° Shutter.



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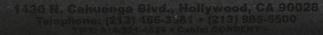
# romething has happened to the

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> Come into our Hollywood showroom and see the **GSAP Minicam-16** today.



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GSAP Minicam-16 fitted with Angenieux 5.9mm f1.8 lens, left, and with the Angenieux 10mm f1.8 lens, right.

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assures instant response and wideranging accuracy for all 16 mm films ASA 10-630; the "match-the-diode" exposure readout replaces delicate needles and coils with rugged solid-state circuitry. This advanced through-thelens meter assures consistently excellent footage whatever your lens, light, or filtration.

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include a lightweight 400' magazine, barney, matte box, special sound aids, heavy-duty nicad powerpacks and quick chargers, even an underwater housing for wide-ranging versatility. All of which makes the Bolex H16 EL an indispensable instrument for 16mm cinematographers. If film is your business, make it your business to take a close look at the Bolex H16 EL soon at your Bolex Professional dealer. Or, write for Lit/Pak P77, and tell us if you'd like to see a demonstra-

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Bolex H16 EBM:

interchangeable nicad battery in detachable power grip • electronically-stabilized speeds of 10, 18, 24, 25, and 50 f.p.s. • accepts Vario-Switar zoom lens with thru-the-lens metering • brilliant, flicker-free reflex finder • accepts crystal-control or sync pulse generator for double-system sound sync • most other Bolex H16 EL features.

Bolex H16 SBM:

precision spring-drive motor, speeds 12-64 f.p.s. plus single frame ● accepts electric motor ● complete Bolex system capability ● most H16 EBM features.

Bolex H16 REX-5:

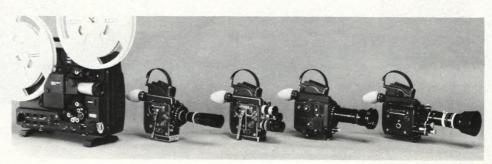
companion model to SBM, equipped with 3-lens turret ● all other features of Bolex H16 SBM.

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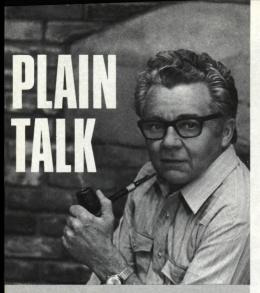


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by J. Carl Treise

# Honestly, do you believe that everyone is the greatest?

If you accept what you read in most film processor ads, it seems that every manufacturer is the greatest. Honestly, do you believe that stuff?

Some firms brag about their units being made of stainless steel, as if it were a miracle metal. They don't tell you they make the frame work, drive beams, and bases out of metal that's so thin it lacks rigidity and fails to provide adequate support.

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For example, do you know that some firms have to modify their processors beyond Kodak specifications, in order to reach the film speed they advertise? (Which means Kodak can't help you when you get into trouble!)

We get tired of false promises and misleading statements. Instead of boasting, a manufacturer should simply describe his unit and let you come to your own conclusion.

The best compliment we ever received was from a customer who thanked us for telling it "as it is".

Do yourself a favor. Don't believe everything you read or hear (— including what you find in this column). Check out every processor you're interested in. Talk to the customer who's actually using it. Find out what he thinks of it.

That's how you can decide what's best for you.

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# **QUESTIONS & ANSWERS**

Conducted by CHARLES G. CLARKE, ASC. and WINTON HOCH, ASC.



(Inquiries are invited relating to cinematographic problems. Address: Q. & A., AMERICAN CINEMATOGRAPHER, P.O. Box 2230, Hollywood. Calif. 90028.)

Q I'm still a little confused about the subject of T-Stops.

A While modern incident light exposure meters, such as the Spectra, make exposure determination a relatively easy and accurate operation, it has long been realized that the presence of serious errors in lens transmission at various apertures could still cause disappointment and failures.

A few years ago, some of the major film studios in Hollywood began to re-calibrate their lenses in terms of real light transmission instead of the theoretical f-stop values, because of the increasing accuracy demanded by color. Finally, this procedure has been given official standing by the recommendation of the U.S. Bureau of Standards that lenses to be marked in what it calls "T-Stop" values, instead of the older f-scale. Some manufacturers have already adopted this, and it may be confidently expected that others will follow.

The old f-value was simply based on the ratio of the focal length of the lens to the diameter of the diaphragm. If, for example, the focal length of the lens was eight times the diameter of a particular aperture as seen through the front element, that aperture was called f-8. If the ratio was four to one, the stop was f-4, and so on.

This system of measurement was good enough in the days of black-and-white materials with enormous latitude, but it had two serious inaccuracies inherent in it. For one thing, it assumed that all the light which passed through the diaphragm reached the film, and it assumed that the focal length of the lens was exactly as

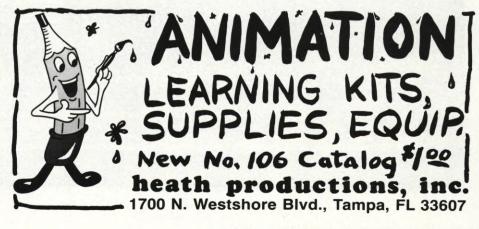
marked. Furthermore, it assumed that the scale divisions on the f-stop scale were accurate.

None of these assumptions is generally true. All lenses fail to transmit a certain portion of the light which strikes them due to reflection and absorption. In an uncoated lens with several elements, the light transmission may be only 505, 405 or even less of the theoretical value. If the lens is coated all of these values change.

In a coated lens, light losses become relatively small, but inaccuracies in focal length and in spacing of the stop numbers remain. Lenses and shutters are produced by means of relatively large-scale operations, and the maker cannot individually measure each scale division of each diaphragm. Focal lengths are approximate. These things add up to spell inaccuracy, often great enough to be serious in color photography and other work demanding precision.

When a lens is re-calibrated new marks are placed on the scale which represent true transmission values. The stop marked T-4, for example, transmits exactly the amount of light that would be transmitted by a theoretically perfect f-4 lens, in which there was no light loss whatever and no inaccuracy of focal length or scale marking. The user knows that T-4, for example, transmits exactly four times as much light as T-8. All of this is measured photo-electrically with the utmost precision, removing one more potential source of error and disappointment.

Editor's Note: This is still another answer on the use of f-Stops and T-Stops.



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The Minolta Flash Meter II makes strobe work as easy and controllable as available-light shooting. Its versatility is unsurpassed for single read-

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The Minolta Auto Spot II and Auto Spot II Digital meters give you ultra-precise 1—spot readings in a 9—field. Two models let you choose between a motorized scale in the viewfinder or a large digital f—stop readout on the side of the meter and an EV readout in the finder. Through the lens viewing lets you pinpoint your subject with extreme speed and accuracy. For critical spot measurement, there isn't a meter that can touch them.

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\*Handbook: RECOMMENDED STANDARDS AND PROCEDURES FOR MOTION PICTURE LABORATORY SERVICES, published by the Association of Cinema and Video Laboratories

### Make a lab "negative-safe"

and it can handle *any* kind of film without the slightest reservation. That's what *quality* control is all about. That's

total environmental control system ensures.

Begin with a windowless, pressurized building (to prevent variations of temperature and humidity, and street dirt from coming in). A 40-ton water chiller and six 750,000 BTU water heaters designed to maintain consistent lab water temperature. A 200ton air-conditioning unit, a series of recirculation pumps. return fans and one monstrous central vacuum system . . . all working in unison to filter all the air in the lab-constantly, 24 hours each day. Mixing, chemical, cleaning and pump rooms with their own separate exhaust system to prevent contamination of other areas. Even speciallytreated walls and floors. At Byron, cleanliness is obvious because dirt never shows . . . on your negative or anything else.

### Reduce film handling

and you reduce the chances of anything "unfortunate" happening to it. How?
It's called efficiency.
And at Byron, efficiency of operation was a major consideration in the design and construction of the building. Obviously, each phase of processing and printing requires dif-

requires different specially-equipped rooms. Byron's rooms are where they should be. Next to the room where the film came from and adjacent to the room where it goes. Basically, Byron is the ideal flow chart at into reality. But



# you've ever shot Now, Byron.

that's not all. Little
things like placing
mixing tanks above
their receptacles
saves the costs of
extra pumps and
unnecessary equipment.
Specialized maintenance
shops near the equip-

ment they service means faster repairs and easier preventive/maintenance checkups. Even the floors of non-critical areas are angled to facilitate cleaning of wastes and chemicals. *Let's face facts*. The more efficient an operation, the less waste. Less waste means lower costs. And the lower the overhead costs, the

less you pay for superior processing and printing.

Being more than just a lab is a major feature of Byron Motion Pictures. Very often producers need additional services... but they don't want the hassles or headaches of going all over town seeking them

out. That's why Byron provides a wide range of extras you don't usually find at a cinema lab. Like two narration studios, complete with mix and looping facilities. Three screening rooms—one of which seats 50 people in Hollywood luxury. Conference rooms. Five fully-equipped editing rooms. Client office space. And three fabulous music and effects libraries.

For your video requirements, Byron provides the best here, too. Such as 24-at-a-time video cassette duplication capabilities.



Film-to-tape transfers from Super 8, 16 or 35mm. And a very unique tape-to-film transfer process, we call *Chromascan* ™ . . . color or black-and-white with single or double system sound. Unquestionably, a transfer process that is light years away from those old kinescopic methods.



### Reliably on time every

time is one of the major functions of Byron's Customer Service Department. Perfection may mean reshooting a scene 39 times until it's right. A motion picture lab only gets one shot at it. Byron Customer Service maintains a watchful eye over your film from the moment it's received until it's delivered back to you. Scheduling, information, advice and problem solving are what customer service people are trained to do. You depend on them. So does Byron.

Give us a call, or drop us a line on your company letterhead. We'll send you our latest price list immediately. Or better yet, send us your film. We'll show you what perfection from a lab is all about. And we'll prove beyond a doubt that a motion picture lab designed, built and operated by one of the most respected men in the industry does make a difference. The Byron difference. After all, when the best film you've ever shot is in the can, you can't afford second best.

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Fiber Optic Screens (with aperture markings) to replace your ground-glass: Better light transmission, easier focusing. A Bridge Plate for balancing long lenses and mounting matte boxes. A crystal control Universal Motor (with Pilotone) that also runs at speeds from 0 to 50 fps and single frame.

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EXP.-TIME
BEL-ZEIT

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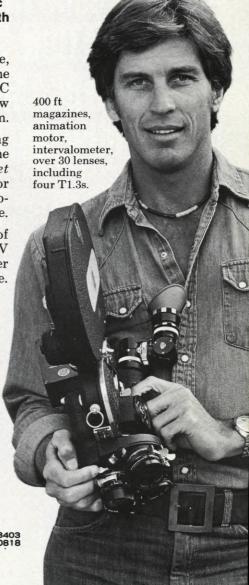
APEC reads the central third of the frame, off the mirror shutter. UV rays are filtered out. ND wedges center the reading on the cell's response curve. APEC is accurate.

Reports of its death have been exaggerated:

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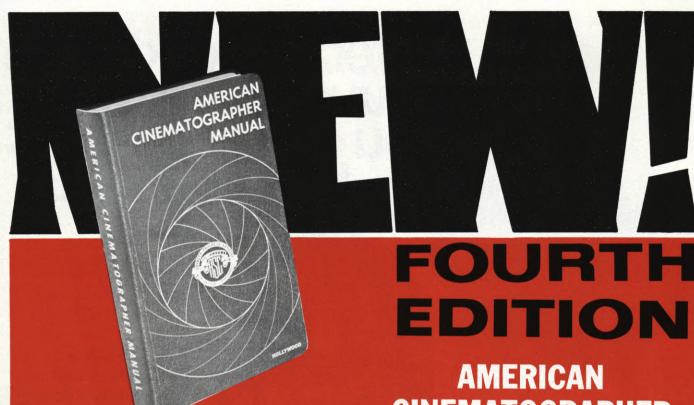
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# "Making films is a creative partnership. TVC was an essential member of our production team."

"Shooting a National Geographic special for Public Television's WQED in the most desolate location on earth, with no chance for lab reports, is intimidating.

"The Karakoram is the world's largest collection of high mountains, a phantasmagoria of vertical dimension, mass and distance.

"When things seemed bleakest, we thought of Dan Sandberg and Bernie Newson of TVC, smiled and felt warm inside.

"The Glacierfilm expedition to the 'third pole' faced severe conditions: altitudes over 20,000 feet with deep blue sky, harsh snow glare and shadowed skin tones or high yellow desert, lush

green oases and cave-like native homes.

"Lighting conditions that all conspired to ruin exposures on ECN 7247.

"We made pre-production tests in the Colorado Rockies. The results were thoroughly reviewed with TVC. On our return from location, selected rolls were tested by Dan and Bernie in the lab. We were offered several processing alternatives. TVC with its exclusive Chem-Tone process solved the problems of extreme contrast ratios often averaging higher than 15:1.

"Making films is a creative partnership. TVC was a member of our production team."

Charles Holmes Groesbeek, Thelma Schoonmaker, Frederic Underhill – producers/directors, Glacierfilm

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# THE BOOKSHELF

By GEORGE L. GEORGE

#### **FACTS AND FIGURES**

In THE SAGA OF SPECIAL EF-FECTS, Ron Fry and Pamela Fourzon offer a fully-documented, well-illustrated and fascinating survey of this basic ingredient of cinematic illusions, from Méliès through Dynamation and Sensurround (Prentice-Hall \$14.95).

The technical, esthetic and social origins of cinema are evoked in an informative and delightful book by Brian Coe, THE BIRTH OF PHOTOGRAPHY. Covering the 1800-1900 period, it outlines photographic progress from the wet plate process and the innovations of the Kodak camera to portraits and art photography. Attractively illustrated with period stills, it is both an historic document and a fascinating story (Taplinger \$9.95). Writer and filmmaker Susan Sontag's ON PHOTOGRAPHY considers the distorting impact of the photographic image on our lives and the wide range of problems, both esthetic and moral, that its omnipresence inflicts on our perception of reality (Farrar Straus Giroux \$7.95).

Production credits and brief synopses of literally thousands of films from 50 countries appear in WORLD FILMOGRAPHY 1968, published under the general editorship of Peter Cowie. This hefty volume presents an extensive overview of that year's worldwide production (Barnes \$35).

Pieces written by 50 American directors (Capra, Friedkin, Kubrick, von Sternberg, Huston and Milestone among them) are collected by Richard Koszarski in HOLLYWOOD DIRECTORS 1941-1976. Often controversial, sometimes prophetic, their always original views cover a wide variety of professional matters (Oxford U. Press \$15./4.95).

Movie criticism and essays by Harry Alan Potamkin have been gathered by film historian Lewis Jacobs in THE COMPOUND CINEMA, a significant testimony to a perceptive and knowledgeable observer of film in the 20's and 30's, whose insights and sensitivity to the new art form encompassed its relationship to changing aspects of society (Teachers College \$25).

In THE MARCH OF TIME 1935-1951.

Raymond Fielding impressively traces the history of that unique journalistic phenomenon which, first on radio and then on film, recreated in fast-paced and highly dramatic style the threatening realities of a turbulent period (Oxford U. Press \$14.95).

Compiled by Evelyn Mack Truitt, the enlarged 2nd edition of WHO WAS WHO ON THE SCREEN lists some 9,000 defunct performers who appeared in films between 1921 and 1975, giving vital statistics and extensive screen credits for each entry (Bowker \$29.95).

\* \* \*

#### STARS' IMPACT ON CINEMA

Performers of stellar magnitude are what has kept movies (and television, essentially a cinema spin-off) on top of world entertainment. And conversely, a brilliant performance can make acceptable visual and technical innovations that might otherwise disturb an audience.

Among performers who left a decisive mark on both their time and ours, the Fairbanks-Pickford ménage is particularly notable. Two books, published simultaneously, trace divergent yet complementary portraits of the couple. Boonton Herndon's MARY PICKFORD AND DOUGLAS FAIRBANKS presents them as complex individuals with chronic insecurities which they overcome through their common pursuit of shared love and success (Norton \$9.95). Gary Carey's biography DOUG AND MARY offers the interesting theory that they became, in fact, replicas of their screen images and lived for the publicity they generated (Dutton \$8.95).

The Elvis Presley persona is rapidly creating its own mythology. Becky Yancey, Presley's secretary for many years. offers intimate observations in MY LIFE WITH ELVIS (written with Cliff Linedecker), a sincerely worshipful memoir (St. Martin's \$8.95). W. A. Harbinson's THE ILLUSTRATED ELVIS is a rich collection of stills from films and personal appearances, with an informative commentary (Grosset & Dunlap \$4.95). In THE ELVIS PRESLEY SCRAPBOOK 1935-1977, James Robert Parish assembles a collector's album of the performer's career and life, including a filmography, a discography, a log of TV and club appearances and concert tours (Ballantine \$7.95). The plots of Presley's films are deftly synopsized in the illustrated STARRING ELVIS (Dell \$1.95) by James W. Bowser, also responsible for ELVIS, a purse-size breviary of his life and loves (Dell 49\*). Even religioso aspects get into the act with Richard Mann's ELVIS (Bible Voice \$1.95).

Alleging murder, theft, statutory rape and cowardice. Lionel Godfrey has a field day in THE LIFE AND CRIMES OF ERROL FLYNN, a fast-moving and breezy biography of the late star (St. Martin's \$7.95). Brenda Maddox is rather harsh on the subject of her biography WHO'S AFRAID OF ELIZABETH TAYLOR?, as she rakes over facts and rumors of the star's tumultuous life (Evans \$8.95). Omar Sharif casts all modesty aside in THE ETERNAL MALE (co-authored with Marie-Thérèse Guinchard), a candid story of his life and many loves (Doubleday \$7.95). The memoirs of a true son of the old West and famous cowboy star, TIM McCOY REMEMBERS THE WEST (written with his son Ronald) is a fascinating tale of high adventure in and out of the movies (Doubleday \$8.95). Literate, clever and mischievous, Truman Capote's THE DOGS BARK contains, along with his recollections, perceptive views of Hollywood's leading personalities (NAL Plume \$4.95).

Grosset & Dunlap is attracting its share of readers with a well written series of large format, reasonably priced studies. JOHN WAYNE AND THE MOVIES by Allen Eyles reviews the Duke's life and career, plus an extensive and detailed filmography (\$7.95). A pictorial biography, GABLE by Jean Garceau, his personal secretary/manager, written with Inez Cocke, is an intimate portrait, both accurate and credible, of the late star (\$6.95). In THE DORIS DAY SCRAPBOOK, Alan Gelb affectionately recaps the career of "the girl next door," plus the plots of many of her films (\$5.95). Liberace's autobiography, THE THINGS I LOVE, discloses candidly what makes him tick at home, on stage and in films (\$7.95).

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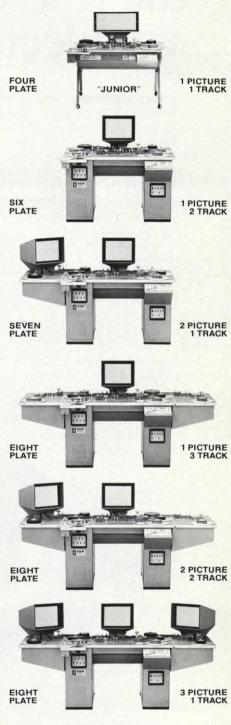
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# The condenser microphone system that doesn't stop with the microphones. Electro-Voice System C.

It's many systems in one. A system of systems with interchangeable components, developed in the real world of the audio professional. Electro-Voice System C groups four high-performance condenser elements with two versatile preamps. And we know that a microphone is virtually useless to a professional unless accompanied by support equipment that works. That's why we sell these microphones in... Packaged Systems.

Everything the professional needs with his microphone is included with the individual mike in a rugged, foamlined case. Windscreens, shock mounts, and even a handle for our shotgun mike. And it's like getting all the "extras" free, because Electro-Voice packaged systems sell for about the same price as our competitor's mikes alone.

System C offers these four packaged systems — each, a ready-to-use, complete system.

CH15E Hypercardioid Head Response: 55-13, 500 Hz. With 315A windscreen.

CO15P Omni System Includes CO15E head, PE15 preamp, 315A windscreen, 310A stand clamp, 15' cable with connector. The CL42S Shotgun System.

very narrow at

Our shotgun reaches farther and rejects more ambient noise. In fact, on a side-by-side A-B test, you'll hear less ambient noise from Electro-Voice. It features an exclusive line bypass port that makes it more directional at low frequencies, without sacrificing the frequency response ideal for boom use. And unlike other shotguns which get

CH15S Hypercardioid System Includes CH15E head, SE15 preamp, 315A windscreen,

304 mini-shock mount.

high frequencies, the CL42S main-

tains high-frequency directivity

through a series of diffrac-

tion vanes on the

CS15P Cardioid System Includes CS15E head, PE15 preamp, 315A windscreen, 312A stand clamp, 15' cable with connector.

CO15E Omni Head Response: 20-20,000 Hz. With 315A windscreen. line tube. Maintains sibilance if the "talent" gets a bit off-mike.

#### The CH15S Hypercardioid System.

It's two extreme nulls—in excess of 35dB at 120° off axis—create a tighter frontal pickup pattern than conventional directional microphones. We're actually more directional than a "mini" shotgun mike, in a package half the size. And our element and preamp were designed together for boom and fishpole use. Lightweight. Under 4 inches long. Compatible with phantom and AB power. And all with a ready-to-go shock

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It loves the stage, has the best gainbefore-feedback in the business, and puts sex appeal in any singer's voice with its bass-boosting proximity effect. And the shaped high-frequency response makes the CS15S equally at home in the recording studio. The phantom powerable preamp has wideband response and high sound pressure level capabilities (140dB SPL for 1% THD at 1kHz)—ideal for the most demanding close-up vocal and instrument miking applications.

The CO15S Omni System.

It extends response to the very limits of audibility—20 to 20,000 Hz. Response that registers the deepest sonorities of a great pipe organ, mirrors all the subtlety of solo instruments. Does full justice to a symphony orchestra. And unlike even the most highly respected omni's the CO15S is truly omnidirectional at the very highest frequencies. Provides a spectral balance faithful in both close-up miking and distant pickups.

Electro-Voice includes all four of these high-performance, packaged systems in its...

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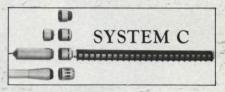
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in the business: for two years, we will repair or replace your System C microphones at no charge—no matter what caused the damage!

We can do it because System C, with its structural integrity through turned-steel cases, and positive mechanical nesting of internal components, more than meets the E-V standards for ruggedness. You'll experience less downtime, and prompt service if anything does do wrong. Prompt because we don't have to send things back to Europe for repair. Prompt because our modular design simplifies repair. Prompt, because we care.

We don't think the professional should accept anything less.

For complete information including an in-depth technical paper on Electro-Voice System C, just write to: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan, 49107





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CL42S Shotgun System Includes CL42E Cardiline® head, SE15 preamp, 343 windscreen, 309 shock mount.

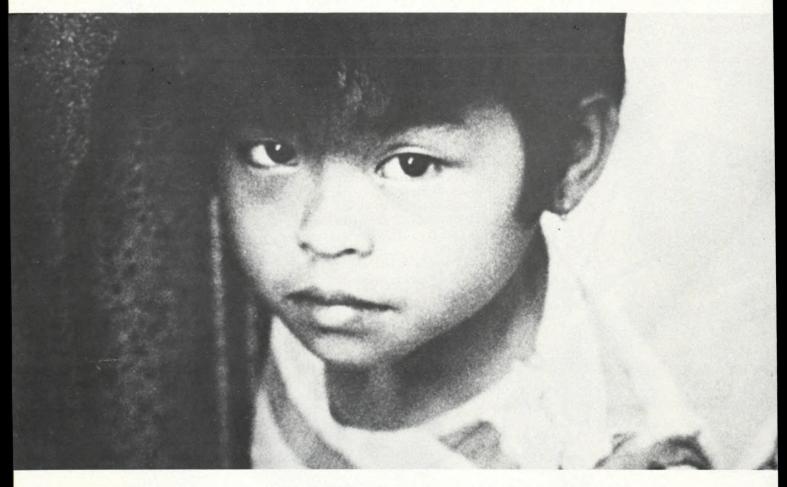
SE15 Preamplifier
For boom or fishpole use.

CA10 Attenuator

BS9 Remote battery power supply.

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# If you have a little money to spare you can buy a kid breakfast for a year. If you have a lot of money to spare you can buy him a home.



For 17 years, WAIF, the Children's Division of International Social Service, has been providing homes for homeless children throughout the world.

We've arranged for their adoption and foster care, settled custody or guardianship problems and reunited many with their families after long periods of separation.

We want to continue doing this. And we can. With a little help from you.

Just \$10 can buy breakfast for 8 months for a pre-schooler in Venezuela.

\$25 will provide English language lessons and counseling for

a refugee child coming to the U.S. from Hong Kong.

\$150 will reunite a Mexican-American family separated by immigration problems.

\$240 will pay for a year's foster care for a Vietnamese baby.

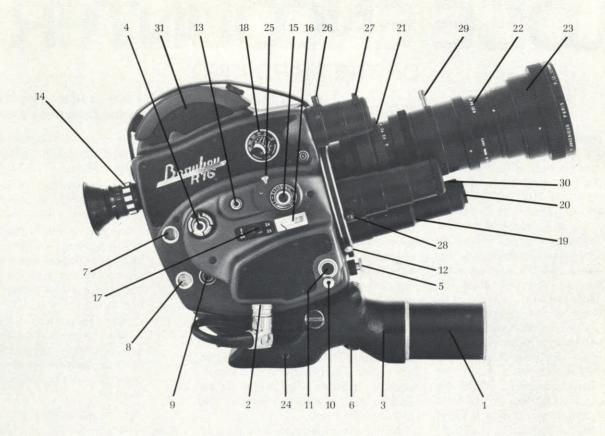
And \$500 will find a home in the U.S. for a rejected Korean child.

Your contribution, no matter what its size, will help make life a whole lot happier for one of these children somewhere in the world.

Send your donations to WAIF, Box 2004, N. Y., N. Y. 10017.

All gifts are deductible from U.S. income tax.





Weight: about 6½ pounds\*

Cost: about \$3,000 less than a comparable professional 16mm camera.

Before you buy your next 16mm camera, consider the Beaulieu R16. It has the same type of full reflex viewing with a mirror shutter as found in the Arri or Eclair. Electronics make it lighter, more versatile, more reliable...and you save thousands of dollars. Check it out at your Beaulieu 16mm specialist in professional equipment.

Beaulieu R16 Bell & Howell Mamiya Company, Dept. At 7100 McCormick Road, Chicago, Illinois 60645.

1. Battery. 2. Power socket for the camera. 3. Handgrip with built in battery. 4. Master switch. 5. Release button with cable release socket. 6. Power isolating switch. 7. Footage counter. 8. Frame counter. 9. Zero reset control for frame counter. 10. Single frame release socket. 11. Signal generator socket. 12. Turret locking catch. 13. Remote release socket. 14. Eyesight correction adjustment for viewfinder. 15. Speed control knob. 16. Fine adjustment tachometer for exact speed setting. 17. Speed range changeover switch (24-25 f. p. s.) 2-64 f. p. s.) 18. Film sensitivity and filming speed adjustment for light meter. 19. Automatic diaphragm control (Reglomatic). 20. Automatic or semi-automatic selector switch. 21. Diaphragm setting ring. 22. Focal length adjustment ring. 23. Focusing ring. 24. Wrist strap fixing point. 25. Speed locking knob. 26. Power zoom control switch. 27. Electric zooming-speed adjustment knob. 28. Automatic maximum-aperture and telephoto lens-position setting button. 29. Manual zoom control lever. 30. Power zoom on/off switch dial. 31. Accepts 200 ft. film magazine.

\*Body with lens.

# BEHIND THE SCENES OF CLOSE ENCOUNTERS

### OF THE THIRD KIND

A film like none ever made before—a science fairy tale, rooted in the reality of today's Unidentified Flying Object phenomena

Out of that mysterious, awesome experience of extraterrestrial contact comes one of the most challenging motion pictures ever conceived: "CLOSE ENCOUNTERS OF THE THIRD KIND". The Phillips Production of A Steven Spielberg Film was produced by Julia Phillips and Michael Phillips and directed and written by Steven Spielberg. The Columbia Pictures/EMI Presentation stars Richard Dreyfuss, Francois Truffaut, Teri Garr and Melinda Dillon.

The release of the film culminates nearly five years of effort following the original conception of the story by Spielberg. In order to protect the dramatic concept, the impact of the story, and the special visual photographic effects, the production was filmed under tight secrecy and security in Wyoming, India, Alabama, and California.

The film's realism is designed to bring the audience as close as possible to an event that could be the most momentous of our time.

The growing controversy over the phenomenon of Unidentified Flying Objects, and the increasing belief and evidence that "we are not alone," gives the film the essence of its tension and suspense.

The setting is today in an Indiana town. It is a story of ordinary people confronting the extraordinary.

#### About The Story . . .

"CLOSE ENCOUNTERS OF THE

THIRD KIND" begins when Roy Neary (Richard Dreyfuss), a power repairman, witnesses unidentified flying objects in the skies near his Muncie, Indiana home. This encounter sets into action a startling chain of dramatic events. Neary tries desperately to understand what he has experienced. He is baffled by the governmental cover-up that blocks his efforts, however, and finds himself increasingly driven to the emotional edge. His wife (Teri Garr) cannot understand what is happening and finds her relationship with her husband disintegrating.

In his quest, Neary clings to an ally in Jillian Guiler, (Melinda Dillon) who had witnessed with him the nocturnal encounter. Together, they pursue an answer to the extraordinary mystery that has engulfed them.

As Roy and Jillian share their struggle, an international "silence group" is being led by a dedicated French expert on extraordinary phenomena (Francois Truffaut). He and his scientific teams seek knowledge of the phenomenon of the skies and search for a breakthrough in communications. This suspenseful, cosmic detective work moves from the Indiana plains across the world to the remote hillsides of India and then to the one place that will hold the answer to the ultimate encounter.

### What Are Close Encounters Of The Third Kind? . . .

Dr. J. Allen Hynek, in his book "The

UFO Experience, A Scientific Inquiry", divides reported UFO sightings into these classifications:

Close Encounters of the First Kind—sightings at close range, usually within a few hundred feet. Close Encounters of the Second Kind—sightings followed by the finding of physical evidence, such as landing marks on the ground, scorched earth or broken vegetation.

Close Encounters of the Third Kind—The most dramatic of the sightings, when "occupants" of the UFO are seen and, in some cases, physical contact is made with them.

The first documented reports of UFOs over America—reports of mystery airships with capabilities beyond all scientific knowledge of the time—occurred in 20 states during a six-month period in late 1896 and early 1897. Unusual events have been happening in the skies over the United States, South America, France, England, Russia, India, Japan—everywhere—ever since and probably occurred even earlier.

Persisting and gaining credence with the passage of time—and particularly with the thousands upon thousands of reported UFO sightings in the past 30 years—has been the growing belief that intelligent life exists in outer space.

Continued on Page 52

(LEFT) Suspense grows, as air traffic controllers crowd around the radar screen to track an unidentified flying object in this scene from the Columbia Pictures/EMI Presentation, "CLOSE ENCOUNTERS OF THE THIRD KIND". (RIGHT) Members of the "silence group" that has been searching for means of communicating with extraterrestrial life await the moment that may signal the answer. (OPPOSITE PAGE) What they see when they look up: the gigantic, luminously beautiful Mother Ship slowly settling down to earth.







# MY CLOSE ENCOUNTER WITH "CE3K"

As the only individual other than cast and crew to be invited onto the super-secret locations of "CLOSE ENCOUNTERS", American Cinematographer Editor gets a fascinating peek at this one-of-a-kind film in the making

#### By HERB A. LIGHTMAN

"Steven has asked me to invite you to visit the location," says the voice of the Columbia Pictures publicist on the other end of the phone.

"Where are they shooting?" I ask.

"You'll fly to Rapid City, South Dakota," says he, cryptically ignoring my direct question. "A studio car will meet you and take you to the location site. Steven wants to know how soon you can leave."

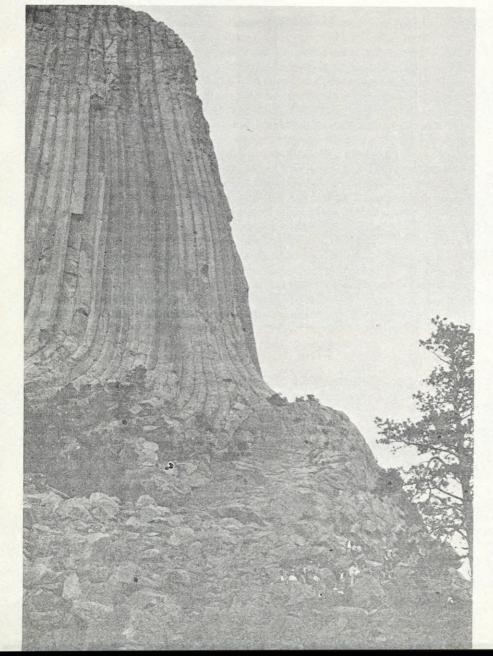
In Hollywood there is a forest of Steves, but only one "Steven" and his last name is Spielberg. Almost everyone knows that he is the *wunderkind* who

directed "JAWS", the most financially successful film of all time.

I quickly accept the invitation, but not because it's any novelty for me to be invited to a filming location. The fact is that if I accepted every such invitation that is extended, I would, first of all, have to be quintuplets and, secondly, I'd never have a minute left to spend in the American Cinematographer office.

But this one is different. All that is known is that Steven and his crew have gone quietly off on location to film something called "CLOSE ENCOUNTERS OF THE THIRD KIND". Nobody knows

Looking like ants amidst the giant boulders at the base of awe-inspiring Devils Tower in Wyoming, members of the "CLOSE ENCOUNTERS" camera crew (lower right) wait for the "magic hour" and the appearance of helicopters to fly over the area and scan it with powerful searchlights. Finding their way down again in the dark was an occupational hazard.



exactly where. The project is encompassed by a degree of security that would make the average CIA covert operation seem like Open House. Rumor has it that everyone on the project has been required to sign a "no-talk" security agreement, that they must all wear ID cards with their pictures even to get onto the set, and that absolutely no one from the outside (and especially the Press) is being permitted, let alone *invited*, to view any of the filming. This invitation, then, is like being asked to have a private audience with the Pope.

I'm not entirely surprised, since Steven and his Director of Photography on this picture, Vilmos Zsigmond, ASC, are old friends of mine who know they can trust me and, happily, do not regard me as "Press" anyway. But how did Steven ever sell the idea to his studio and to the producers?

As for the air-tight security—it's not as paranoid as it might sound. Hollywood is the land of the Big Rip-off, when it comes to stealing ideas. Witness the rush to the big and TV screens that ensued when the Entebbe story broke. At least seven production organizations announced projects based on the incident.

More usual is the practice of trying to cash in on the expensive publicity generated by a multi-million-dollar film project by rushing a cheap, sleazy version of the same story into release. The announcement of Dino DeLaurentiis' "KING KONG" sparked several such imitations, including a 3-D version whipped up in, of all places, Korea.

Such being the case, the "CLOSE ENCOUNTERS" entrepreneurs can hardly be blamed for not wanting to see their ideas end up on the TV tube far in advance of the picture's release.

While packing my rucksack for the trip, I think back to my first close encounter with the name, if not the person, of Steven Spielberg.

The year is 1969 and I am on the Awards Jury of the 2nd Atlanta International Film Festival. Bleary-eyed, after having sat through screenings of dozens of features and short films in competition, my interest is snapped to attention by a delightful 24-minute picture called "AMBLIN". Filmed in 35mm with no dialogue, but backed by a melodious score, it tells the simple story of two young people hitchhiking from the California desert to the coast. These

simple elements add up to a rollicking romp, a joyous paean to youth and life. The director is 21-year-old Steven Spielberg. I do not have to pound the table very hard to convince my fellow jurors that the top award in the Short Subjects category should go to "AMBLIN".

When I finally meet Spielberg face-to-face, it is four years later (1973) in Floresville, Texas, where he is directing Goldie Hawn and 250 police cars in his first theatrical feature, "SUGARLAND EXPRESS" (see American Cinematographer, May 1973). I am to write of him on that occasion as "highly-keyed, intense and exuding the air of a real pro." But he also comes across as a cheerful, extremely likable almost-boy-next-door who careens around between set-ups on a little dirt bike.

Steven then disappears into the wilds of Martha's Vineyard for a couple of years to shoot the immortal "JAWS" and I am duly impressed with the artistry of the result—to say nothing of how many people go to see it.

One day I get a call from Steven asking me if I have ever seen "DUEL", the movie-of-the-week he made for domestic television and foreign theatrical release. I haven't, but I have heard that it made a fortune overseas and garnered all kinds of awards. He offers to have it screened at Universal for me and I take him up on it.

Alone in the darkened projection theater, I sit progressively farther forward on the edge of my seat while a huge truck with a faceless driver becomes a marauding juggernaut, a relentless multi-ton instrument of would-be murder, as it careens in pursuit of Dennis Weaver in his economy sedan. By the time the suspense-crammed denouement has left me limp as a rag, I am convinced that I have been in the presence of genius - a term which, unlike my Hollywood colleagues, I use most sparingly. Steven has taken a handful of the simplest dramatic elements and crafted a masterpiece of suspense that could make Hitchcock look to his laurels.

#### **DEVILS TOWER, WYOMING**

Winging eastward through the night, I wonder if Rapid City is so-named because it moves fast or because it lies hard by some stretch of rushing waters. All I know for sure is that it is nestled in the Black Hills of South Dakota near where Gutzon Borglum sculptured the faces of four American presidents onto the side of Mt. Rushmore, but it's dark when we land, so I don't get to see these noble portraits.

Sure enough, there is a car waiting for me, together with a couple of Columbia



Among the delights encountered by *American Cinematographer* Editor Herb Lightman during his visits to the "CE3K" locations were reunions with several old and special friends, including special effects expert Doug Trumbull and the three shown above: Writer/Director Steven Spielberg, Director of Photography Vilmos Zsigmond, ASC (background), and 2nd Unit Director of Photography Steve Poster (foreground).

Pictures people who still won't tell me where we're going. All I know is that it's quite a haul before we reach Gillette, Wyoming, an undistinguished hamlet of about 3,000 souls, most of whom are cowboys. I am registered in at—so help me—the Super 8 Motel, where most of the people in the company are staying. Where is Steven? He is ensconced in Winnebago splendor in a huge motor home at the location site, "some distance from here", according to the closemouthed publicity people.

Luckily, Vilmos Zsigmond is on hand with a warm welcome and we spend the rest of the night in one of our wine-and-gab sessions during which he catches me up on what has been happening. But even he, having been sworn to secrecy, is guarded in what he says, though he's very high on the project.

The next morning, crack of dawn, we set out for "the location" and drive for about 60 miles through picturesque countryside that has been raped by strip-mining. We finally turn into a curious kind of compound contained by a chain-link fence and featuring various

military-appearing modules and a group of large trucks with such designations as Piggly-Wiggly Stores and Baskin-Robbins 31 Flavors emblazoned on their sides. This is the "Base Camp" set.

When I get out of the car and look up, I am stunned by what I see. Directly in front of me, rising 1,200 feet above the flat plain, is the most unusual natural formation that I have ever seen during many years of world-wide travel to the most scenic spots on the planet. The top 600 feet is a fortress-like monolith thrusting almost straight up from a broad talus slope below, and its sides are raked with striations that are actually huge individual polygonal columns of rock. This is Devils Tower. It is a unique, majestic monument to Nature's handiwork and I can't take my eyes off it. There's something mystical about this silent sentinel and it kindles within me a distinct feeling of déjà vu, as if I've been here before in some far-distant time frame.

My reverie is ruptured by a hearty greeting from Steven, who welcomes me aboard like he's really glad to see me. He Continued on Page 56

# LIGHTS! CAMERA! ACTION! FOR "CE3K"

By VILMOS ZSIGMOND, ASC

Director of Photography

Photographing Spielberg's stunning science fantasy amounted to a challenge demanding limitless energy, instant adaptability and all of the technical expertise garnered during this cinematographer's wide and varied career

#### **DEVILS TOWER, WYOMING**

Our basic problem on this location is time. We've got so many things to shoot here in such a short time. It doesn't seem to make sense, on a film that costs so many millions of dollars, to have to shoot practically one-fifth of the action in about ten days. Part of the problem is caused by the fact that the National Parks people don't want us to shoot here later than June 1st, due to the influx of tourists and vacationers who will be coming to see the Devils Tower. Of course, our picture

should have started in November, but for several reasons it was postponed until May. If we could have started in November, or even January, we wouldn't have had this problem. We could have spent a bit more time on the part of the picture that has the most scenic background.

Wyoming is so beautiful and the clouds are so fantastic—if you can wait for them. There are frequent changes of weather here and we've gone through practically every kind of weather one can imagine. Two weeks before shooting

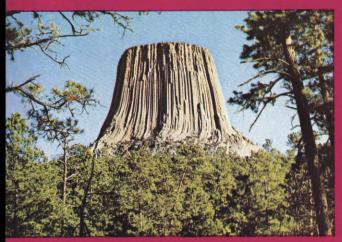
started there were about four inches of snow covering the Park and everyone was praying that the weather would go right for us. Well, it was okay for a few days—we had fantastic clouds and the weather was just wonderful—but then it changed. It rained for a few days; then it cleared up and we had no clouds at all—just a bare blue sky. It's hard to believe, but Wyoming doesn't look that good when you have a bare blue sky. It just looks like any other state; it looks like California.





In Mobile, Alabama, a World War II dirigible hangar was converted into the world's largest sound stage for filming the "Box Canyon" sequences of "CLOSE ENCOUNTERS". It measured 450 feet long, 250 feet wide and 90 feet high, the only covered area that could be found anywhere to contain the huge set, portrayed in the film as a secret base for welcoming UFOs from outer space. (RIGHT) At the end of the Box Canyon set hangs the 40,000-pound hatchway of the Mother Ship, to be attached to it through the magic of special effects. (BELOW) Frame blowup showing the set with night exterior surrounding matted in by Doug Trumbull's visual effects wizards.





A primary location for "CE3K" was the fantastic **Devils Tower National Mon**ument in Wyoming, which rises steeply for 600 feet above a broad talus slope at its base. The igneous (volcanic) monolith is unique in that its sides are uniformly striated by polygonal columns. Most of these are 5-sided, but some are 4 and 6-sided, measuring 6 to 8 feet in diameter at their base. The almost flat top measures 180 feet by 300 feet.

Steve dreamed up some very interesting shots before the picture started, but sometimes he just wakes up in the morning and comes to me and says, "What do you think about us doing this or that?" And sometimes it is a fantastic idea that any cameraman would love right away, because it's a challenge.

For example, he had one scene with about ten people seated in a helicopter and he wanted to start the shot on one side of it, as Richard Dreyfuss walks out of the hut and over to the helicopter. At that moment, the camera pulls back through all those people, showing their faces, and comes out the other side of

The biggest problem for a cameraman, when he's shooting in changing weather conditions, is that of matching. You start a sequence in bright sunshine and you have nice clouds, but the next day you have no clouds. You may have, instead, a dark overcast sky. Now what do you do? How do you match? The answer is that we just shoot anyway. Today pictures are so different from the way they were, let's say, ten years ago. Then the cameraman could have talked the director into waiting a day or two. If it was David Lean, he would wait a week or even two weeks for the day when you would have clouds. But today budgets are so tight and schedules are so firm that the only thing you can do is start the camera and shoot it anyhow. If it doesn't work, you will reshoot it.

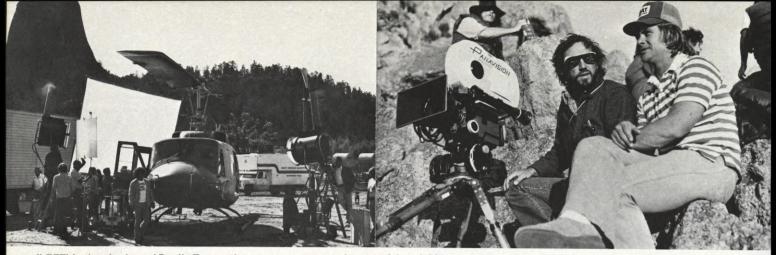
There are certain things I can do to protect myself against the matching problem. For example, if I start a sequence on an overcast day, I will try to use some modeling light. I will just make up a direction that the light seems to be coming from, so that if the weather changes the next day I will have a justification to shoot with a directional light. I don't shoot anymore with available light like I used to, because that's very dangerous. It works when the weather is overcast, but when you get a sunny day you're dead. You have a mismatch. There's just no way to make a sunny day look like it's overcast. You can maybe eliminate long shots and stay tight, do only medium shots and closeups and use a butterfly to screen the sun off-and this method works for tighter scenes-but when you're working with Steve Spielberg you don't have tighter scenes, because even his closeups are big shots. You may have two people in the foreground, but there will be everything in the background. So you cannot really cheat. The only thing you can do, even when the weather is overcast, is try to visualize how everything is going to look in sunshine, and then light it a bit that way.



Three top talents of the American film industry, and key technicians of "CLOSE ENCOUNTERS", hold an informal confab on location. They are (left to right) Director of Photography Vilmos Zsigmond, ASC, Visual Effects Coordinator Douglas Trumbull and Writer/Director Steven Spielberg. In addition to their enormous body of expertise, they shared a boundless enthusiasm for the imaginative project.

After years of space travel, returning earthlings debark through the hatchway of the spectacular Mother Ship. The blinding blaze of light which silhouettes them was created by beaming HMI spotlights from various angles onto a sloping mirrored ramp. The light beam effect was accentuated by blowing artificial fog into the air.





(LEFT) In the shadow of Devils Tower, the crew sets up to make one of the trickiest camera shots in the picture—one in which the camera starts on one side of the aircraft, then pulls through the interior (filled with people) and out the other side. It was achieved by mounting the Panaflex on the end of a 10-foot piece of wood attached to the dolly. (RIGHT) Zsigmond enjoys a rare moment of relaxation with his Operator, Nick McLean. He is extremely proud of the performance of his crew, which included, in addition to McLean, 2nd Operator Steve Poster (who also functioned as 2nd Unit Director of Photography), First Assistants Mike Genne and Louis Noto, Key Grip Bob Moore and Dolly Grip Tim Ryan.

the helicopter. Then it pans over to the left to show Francois Truffaut talking to the pilot. He comes back to the middle of the ship, closes the door, and walks away.

Now, it sounds as though a shot like that would be fairly easy to do, but you have to consider that there is only a couple of square feet between those people that you can move the camera through. Even the Panaflex cannot be that easily moved through those people. To solve that problem, our key grip, Bobby Moore, devised something that he called a "Ubangi", which was actually a 10-foot piece of wood. One end of it was attached to the dolly, with the camera mounted on the other end. The camera was pushed through the helicopter and out the other side to pick up Dreyfuss coming toward us. Then, as we dollied back, we just slid this piece of wood through the plane above the knees of the people. We just barely had room enough to do that, and the people had to pull away a little from the camera to make room for it.

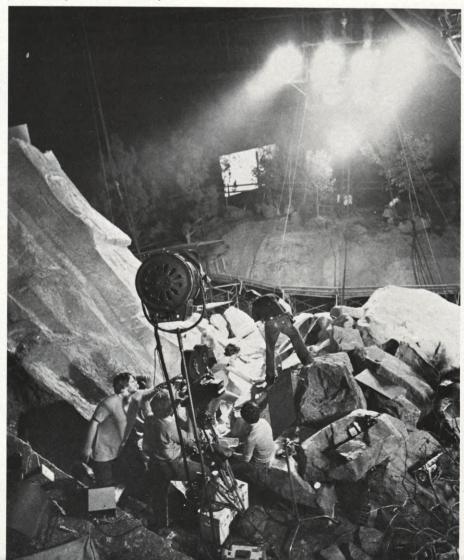
On top of all that, we had to light the scene, which was the biggest problem of all because we were using a 30mm lens that showed everything. You could see practically the whole helicopter on the pullback, so we really had to move lights around. We had a couple of Brutes standing by on the outside, and as soon as the camera was dollying and was inside the helicopter, we had to pull those lights in to become the kickers on the faces. We also had to hide lights inside the helicopter. Then there was the balance problem-with sunshine outside, almost no light inside, and no way to hang neutral density gels.

I'm sure it was the most difficult shot I've ever made in my life, but when it appears on the screen probably no one will notice it, because it will look so natural, like it was not lit at all. That's my idea of lighting anyhow—to light a scene so that it doesn't look like it's been lit. I used to get that effect before by just flashing the film. That technique helped me a lot in my previous pictures because it easily knocked down the contrast to the point where I practically didn't need any light. But, of course, that was always done at a loss, because I never could get any real

blacks that way. My films always looked gray, dark gray, which was okay for that period of movie-making. I think people liked the documentary style and they forgave me for the grayness because I could move faster that way and everything looked natural. Except that I didn't have any blacks.

Before this picture started shooting,

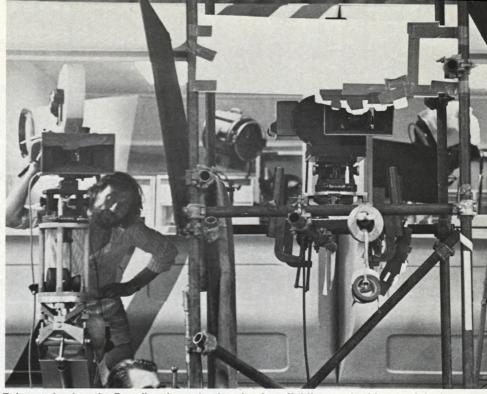
Preparing to shoot a scene high up on the "notch" of Devils Tower, duplicated by means of an elaborate structure built inside the second hangar at Mobile. When the crew filmed a similar scene on the actual Devils Tower in Wyoming, it had been necessary to lift cast, crew and equipment (including a dolly and battery-operated arc) onto the side of the mountain by means of helicopter.



Steve and I talked about how it should look. One of the things we decided was that we had to have blacks in it-in fact, the full range from the whitest whites to the darkest blacks. To me, this meant that I was not going to use flashing. I almost had to go back to a sort of conservative lighting technique. In other words, I would have to light everything I wanted to see. This gave me more challenges, more problems and more work. But, on the other hand, the results are looking better and we are very pleased with the visual style of this picture. It is probably the first picture I've photographed that goes back to the classical style of movie-making-with a realistic touch-which means using lighting all the time, but not showing it.

Steve's directing style is very interesting on this picture. He is staging shots which are very complicated. For example, we have a lot of scenes where people are climbing mountains, with helicopters flying over them at certain intervals. The several elements of action have to be timed exactly right, so that the people can react to the helicopter passes precisely. For that reason, we are not getting into one-minute takes or longer that will end up on the cutting room floor. Steve learned the lesson, on his previous pictures, that the most beautiful, the most perfectly designed shot can be eliminated in the editing stage because of the timing element. So he keeps his shots very tight, timing-wise, but everything has to be perfect.

As for these numerous helicopter scenes that require such precise timing, five or ten years ago it would have taken a whole day to stage and rehearse such a scene until it went right, but Steve does it very easily in an hour. One of the reasons that he is so successful in this way is the tremendous crew that we have working with us. We have one of the best helicopter pilots in the world and our first and second assistant directors are very



Zsigmond pokes the Panaflex through a jungle of scaffolding on the fringes of the huge Box Canyon set. Behind him can be seen some of the fiberglass modules used to house all sorts of scientific equipment in the set. He was the first cinematographer to use the Panaflex camera to shoot a feature production, which, coincidentally, happened to be Steven Spielberg's first theatrical feature directorial effort, "SUGARLAND EXPRESS".

sharp, very good people. They can organize things very fast. Our grip crew is so fast that they can build complicated dolly mounts in minutes. Our electricians are fantastic; they can just throw in four Brutes in a matter of minutes.

One morning we found a location between our base camp and the Devils Tower which was excellent for shooting a scene that shows the people climbing the mountain with the base camp down below in the background, and the helicopters flying overhead. The only problem was that it was very impractical to shoot because there were no roads nearby. We had to climb a couple of hundred feet up into the mountain and it was a very difficult climb. We decided that we were going to haul everything up by helicopter. So we took the personnel up—the actors and crew members—and

to make the shot even better, we decided to use a dolly. The reason for the dolly was that from my past experience I've learned that usually depth doesn't show unless you are moving with the camera. It just looks like a painted backing. But once you start moving the camera it becomes three-dimensional.

So we hauled everything up in the helicopter—the dolly tracks, the dolly itself—and my gaffer even brought up a little Brute with a battery pack, so that we could have an arc up there. The scene was very complicated planning-wise, because it involved the flights of three helicopters that had to be right on time at different intervals. We had to shoot sync-sound at the same time, but by 11 a.m. we had the shot and were moving on to another location. We were able to Continued on Page 64

(LEFT) Zsigmond checks the mount used to secure the camera to the side of a car. (RIGHT) He checks the composition before the take. Once Hollywood's foremost exponent of the "flashing" technique for cutting contrast, he has now moved away from that procedure because he found it prevented him from getting rich blacks. Also, on "CLOSE ENCOUNTERS", the decision was made not to force process any of the negative, due to the fact that optimum quality was needed to cope with possible second and third generations that might prove necessary for optical effects.





# DESIGNING A WORLD FOR UFO'S, EXTRATERRESTRIALS AND MERE MORTALS

**By JOE ALVES** 

Production Designer

in this facility because it gave us the opportunity to open up the end doors and
build out even farther under tarps. The
result is an area that is larger than any
four of the largest existing sound stages.

The tarps have presented incredible problems. We've had to go eight stories

high with them and they are supported by tremendous cables that are anchored in a solid concrete beam 12 feet deep and 100 feet long. The expense has been horrendous, to say nothing of the threat posed by hurricane winds. When we were working on "JAWS", we were al-

Everything from what may be the largest motion picture set ever built to a "cutesy" suburban house, with man-made mountains thrown

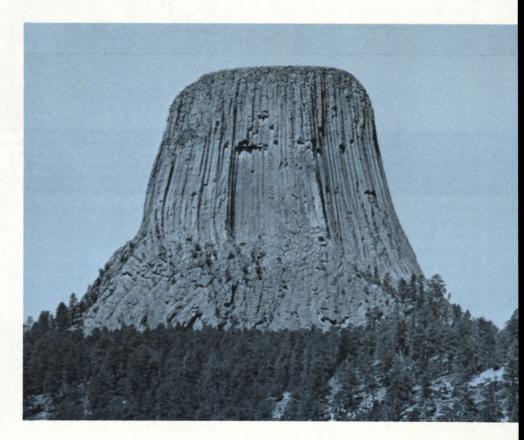
in — all in the day's work for the Production Designer of "CE3K"

(EDITOR'S NOTE: The following was written on location in Mobile, Alabama, during filming inside two gigantic former dirigible hangars. One of these enclosed the huge "Box Canyon" set, representing a secret base where scientists and United States government officials greet the extraterrestrial creatures aboard UFOs attracted to the spot. The other hangar contained two additional massive sets: a length of cliffside roadway overlooking the Indiana countryside, and a "notch" in the rock near the summit of Devils Tower, Wyoming.)

The basic challenge of a picture like this is its tremendous scope. The action takes place mainly in exterior locations, and on a vast scale. Searching out and finding those locations was practically a career in itself—especially the search that ended with Devils Tower.

We were looking for an unusual bit of topography, and that took some 2,700 miles of driving. We went all through Monument Valley, Arches National Park and several other national parks. We took still photographs everywhere and then came back and showed them to Steven. He liked the Devils Tower location, but we still went back and scouted a bit further, just to be sure.

We realized that for the last sequence we would need an exterior set designed on an enormous scale, but that it would have to be built under cover. Since there was no sound stage in the world large enough, we had to search for available hangars and that took us to 17 states and several foreign countries. We ended up



In search of "an unusual bit of topography", the author drove 2,700 miles through Monument Valley, Arches National Park and several other national parks before finding the right landmark, Devils Tower National Monument in Wyoming (ABOVE RIGHT). Steven Spielberg liked it the best. (BELOW) Frame blowup from "CLOSE ENCOUNTERS" shows how it appears near the end of the picture. Miniature Tower, star field, rolling clouds and superimposed UFO landing site courtesy of Douglas Trumbull and his associated wizards.



ways worried about the shark breaking. Here we're worried about the tarp collapsing.

In concept, the Box Canyon set was designed to represent the type of study area that might be set up if the events depicted in the film were actually to occur. We researched this in depth. We talked to a number of scientists and asked, "What would you do there? What kind of scientific group would be represented?" We found that there would be a laser spectrograph and other laser instruments that would measure the volume, heat intensity and the mass of whatever objects might arrive. There would be a biochemist and other technicians representing the various sciences.

We've tried to keep the design and decoration of the set on a sort of "today" level. The intention was not to go futuristic at all. We didn't want to get into a "STAR TREK" type of thing, but simply a "nowism"—and that's why the architecture, the scaffolding and all the plastic modules are within the realm of today's technology. The Coke machines, outhouses and other elements of realism in the set give the audience something they can relate to, in contrast with the phenomenal things that happen there.

Prominent in our Box Canyon set is a large scoreboard type of construction that serves as the main communication medium between the Mother Ship and the earthlings. It is a light board that interrelates with a sound synthesizer. I designed it to a 12-tone musical scale and a 12-tone color scale. It has six octaves and a fixed tone from dark to light. We hooked this up with a piano so you can literally play it and get color instead of notes. It has overtones and it pulsates and integrates with the sound. We have a musician with headphones up in the booth reading and playing the music that John Williams composed, while the scoreboard is playing the music in color. That's the main means of communication between the alien beings and ourselves. They are speaking in a sound and color sort of language.

The scientific equipment used in this Box Canyon set, if it had actually been designed and built for the events portrayed, would have cost about \$100,000,000. It has all been rented, of course, but even so, it has been insured for \$2,000,000.

The Mother Ship, gigantic spacecraft that lands in the final sequence of the picture, has not been built on the set because it will be a composite of models and special visual effects created by Douglas Trumbull. But we did have to construct the very bottom portion of it, a huge box-like hatch, the lower part of



Quite possibly the largest movie set ever built indoors was this "Box Canyon" exterior constructed inside a World War II dirigible hangar in Mobile, Alabama. An eight-story tarp at the end of the structure could be removed to permit building out an additional 100 feet to indicate a landing strip bordered by two rows of landing lights in forced perspective. The set took three months to build, including 6,000 artificial boulders and concrete platforms above the floor level.

which descends as a ramp to reveal a blinding light. On the screen it won't look like the structure of black velvet and mirrors that it actually is, but rather like a physical slit of extremely hot light, a gigantic arc 60 feet in diameter. We've goboed it off and shot it with a little fog over so that the thing just flares. It is the most incredible effect. Some of the most beautiful pho-tography I've ever seen has been achieved by bouncing the light in this way. When people walk into this hatch they just sort of disappear into the tremendous blaze of light and then reappear when they come out again. Vilmos Zsigmond is overexposing it four or five stops to get the blinding light effect.

This construction also flies from the ceiling. It can be raised and lowered to simulate takeoffs and landings of the Mother Ship. But it is an incredibly massive structure that weighs 40,000 pounds. It was necessary to build it that heavy so that it would hang in a precisely straight line and not turn or sway in relation to the optical effect that will be joined above it. Had it been built out of wood or lighter materials there is the danger that it might warp or twist and ruin the effect.

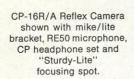
The three sloping sides of the Box Canyon set are composed of what appear to be massive rocks, actually made of fiberglas. I have an excellent "rock man", George Sampson from Par-

amount, and he did an incredible job on this picture. The rocks are as good as any I've ever seen. We made the molds in Hollywood and brought them here. We had 12 variations of molds to make the 6,000 rocks required for this set and they were carefully twisted and set so that you don't really see any repetitive pattern. The fiberglas forms were put together and then painted to simulate the rock-like texture.

Devils Tower is a most unusual granite monolith. It just sort of rises out of the earth with walls composed of fluted shafts, with tremendous crumpled boulders around the base. What a marvelous meeting place for UFOs—what a marvelous landmark of which to say, "I'll meet you on the other side of Devils Tower." It's going to work just great for this picture, especially since it's never been shot for a film before. Of course, we want to keep that quiet. We don't want a television crew to go ripping up there to shoot it before this picture is released.

The Box Canyon set takes up the entire floor area of one of the hangars, and actually extends another 100 feet beyond the tarp, which is opened up to shoot night-for-night scenes showing the landing lights. The other hangar encloses two more very large set constructions that are actually foreground Continued on Page 60

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### SPIELBERG SPEAKS ABOUT "CLOSE ENCOUNTERS"

Straight from this extraordinary filmmaker's mouth come illuminating observations on the loneliness of scripting, the gut-wrenching labor of shooting and one ultimate doubt about the making of his epic film

During a year-and-a-half of being rather closely associated with the production of "CLOSE ENCOUNTERS OF THE THIRD KIND", *American Cinematographer* Editor Herb Lightman taped three separate interviews with Writer/Director Steven Spielberg at intervals of about six months.

The first took place on location at Devils Tower National Monument in Wyoming. The second took place between constant phone calls at Spielberg's home in Beverly Hills. The third was a surrealistic experience occurring in the frantic atmosphere of Musso & Frank's Hollywood restaurant, at lunch hour, because that was the only time Steven could steal from his 14-week grind in the dubbing studio at Todd-AO.

DEVILS TOWER, WYOMING

QUESTION: How did you happen to

find such a perfect location for this segment of "CLOSE ENCOUNTERS"?

SPIELBERG: When I first wrote the screenplay back in 1974, it called for a very unique rock formation. It just so happened that as I was going through books looking for the proper place, the only location that came anywhere near to matching my fictitious description in the screenplay was the Devils Tower National Monument, right here in Wyoming. It was one of those fateful twists that made me very happy.

When I got here I found out that it was a very hard location, but much easier than so many locations I've been on. Anything on solid ground is easier than working on water. We've been hanging upside-down from helicopters; we've been jumping from boulder to boulder;

we've been fighting the heat and fighting the cold—but it's not half as grim as shooting "JAWS". We have long days here. The sun comes up at 5:30 in the morning and doesn't set below the horizon until about 8:00 p.m., so we have a good hour of "magic" from about eight to nine or nine-fifteen.

QUESTION: You're shooting on 5247 negative, which is relatively new at this writing. How do you like it?

SPIELBERG: I don't like it at all. It's flat. It doesn't have any depth, and there's no texture to it. It's almost too clear. It doesn't feel like 5254 used to. The 5254 negative had a real tactile quality, and 5247 is as slick as a chocolate brown Bentley. You have to use coral filters to warm the damned stuff up, but I guess I'll get used to it. We are shooting all of our 65mm negative on 5254. They don't make a 5247 in 65mm. If I had a choice I would shoot the whole movie in 70mm. just to be able to use 5254, but that would be too expensive. We are shooting the drama in 35mm, but all of our effects are in 65mm. When we lose optical generations in 70mm, hopefully there will be a happy marriage between the virgin 35mm and the deflowered 70mm. There will be no grain to cue an effects shot. It should all look the same.

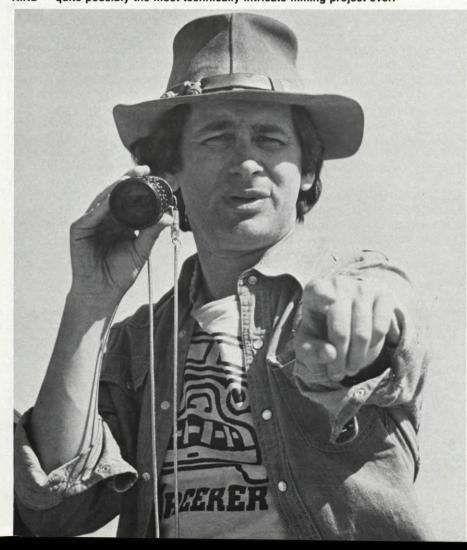
QUESTION: Tell me about the people you have working with you on this one.

SPIELBERG: Well, it's the best crew I've ever worked with. I'm open to ideas, so everybody comes to me with theirs. The camera crew is excellent. Working with Zsigmond again is a real thrill. I've been looking forward to this for about three years, ever since "SUGARLAND EXPRESS". He wasn't able to shoot "JAWS", but now we're working together again. He's going to make an enormous contribution to the graphics of this production.

QUESTION: I understand that there were a couple of scripts before this one that were written by other writers, but that you then decided to write it yourself. Can you tell me a little bit about that?

SPIELBERG: I had this idea about a year before I started "JAWS", and I wrote a

Not content with having conquered the watery nightmare of "JAWS" (until "STAR WARS" the highest-grossing film ever made), Writer/Director Steven Spielberg took upon himself an even more horrendous challenge in creating "CLOSE ENCOUNTERS OF THE THIRD KIND"—quite possibly the most technically intricate filming project ever.







(LEFT) Spielberg whispers direction to Terri Garr, who plays the long-suffering suburban housewife in "CLOSE ENCOUNTERS". (RIGHT) He has a few pre-take suggestions for Richard Dreyfuss, whom he had previously directed in "JAWS". No mere "traffic cop" director, solely preoccupied with the mechanics of film-making, Spielberg seeks to extract the best possible performances from his actors.

short story myself and took it to Michael and Julia Phillips, who had just finished a film called "STEELYARD BLUES" and were going into production on a thing called "THE STING". We had a session one Sunday and got very excited over the idea. I was originally going to write a screenplay, but I just did a treatment, because "JAWS" came along and I put my idea aside to jump into that project. I wanted to develop it during the making of "JAWS" in Martha's Vineyard, but in order to keep an idea fresh and exciting for me, I like to put somebody on it right away, even if it is not exactly what I want. It's nice to see a first trial and find out why it's not working, and I always like to do that. I'm working on two projects now that I'm having writers develop for me, and at some point I'll come in and work with them and turn the projects into something that I will be interested in directing.

QUESTION: Is this the first feature you've written?

SPIELBERG: I've written a few others, but they're not worth mentioning.

QUESTION: Contrasting the writer's craft with the director's craft—one is an essentially solitary, almost lonely pursuit, while the other is more extroverted in terms of constant contact with other people. How have you responded to this contrast?

SPIELBERG: Well, writing is the most agonizingly lonely profession on the face of the planet. There is nothing

enthralling about spending all of your time in front of a typewriter staring at a blank piece of paper, waiting for the idea machine to crank over a few times. I find writing to be the most difficult thing I've ever done. I find it much more difficult than directing, because it requires a lot of concentration and I'm not the most concentrated of people. It took me a long time to write the screenplay, because I would rev up and for two or three days I'd go great guns. Then suddenly I'd lie fallow for a number of months, after which I'd come back to it again in a burst of inspiration and write for 48 hours. Then nothing for two weeks. Then suddenly, I'd be writing for 24 hours. Then nothing more again for a week, until the muses could seize me before dropping me on my ass.

QUESTION: Many so-called "hyphenates" feel a bit schizophrenic about both writing and directing a picture. Do you feel at all that way?

SPIELBERG: While directing, you are working with feedback; you are collaborating with 60 or 70 different people. No director I know ever does a film alone. But most of the writers I know are isolated and lonely. I find that when I'm directing my own writing I fall quickly out of love with what I wrote. The director in me contradicts the writer in me. The director fights the initial instincts of the writer. I find myself having to scream down at me from the writer's platform: "Why are you changing that line? It was a great line when you first wrote it; why are you changing it now?" The director

in me says: "Because I've read the script so many times that I'm tired of that line." Then the writer in me says: "That line has a reason for being in this picture. It makes a story point. It has an emotional meaning. It says something about the characters." So I have this constant tug-of-war within myself. Now I know what it's like when a writer sees a director changing his work, and I see myself fighting schizophrenically on both sides of the fence, which is difficult. For example, I've just finished staging a scene and listened to how it playedand realized that what I had written a year ago read better on paper than it sounded coming out of the mouths of professional actors. So I rewrote the sequence today to accommodate the actors I'd cast in the various roles. I didn't do an enormous rewrite; I simply changed words here and there. The François Truffaut character is now much more intense than he was originally written. He's still a man of peace, but he's also a man of great organization and selfless ambition. When the man is pushed into a corner he can certainly fight back, fight his way out. In the original screenplay I made him very timid and much more of a man-child. Now, as the role plays, he is still a man-child, but he has a great deal of cunning and enthusiasm.

QUESTION: As you know, usually the actors are the last element of production that American Cinematographer readers are interested in, but Truffaut is not just another actor. So on that score, I'd like to know about the

### rapport you've developed in working with him.

SPIELBERG: Well, at the very beginning I went over to Francois and said, "I apologize in advance for the behavior I'm going to demonstrate over the next few weeks, but you're Francois Truffaut and that blows my mind. It was one thing thinking about you for this part, but it's another thing to actually meet you and realize that you are going to be in this movie. I can't believe that you said yes. Why did you say yes?" His response was that he was writing a book called "THE ACTOR" and he wanted to know what it feels like to be an actor in someone else's movie. Apparently I'm not the first director ever to want Truffaut to act in a film; he's had a couple of dozen offers. But he felt that this was the right script for him. He read the screenplay and committed himself on the basis of the idea behind the role, just as most actors do. He's getting paid not very much money-far less than he gets paid when he directs, but he's still out here suffering with us in Wyoming and is due to suffer with us in Mobile, Alabama.

QUESTION: But from what you've just said, you were pretty bowled over by the fact that he's a very famous international director. Wasn't that some-

### thing of a handicap in trying to give him direction?

SPIELBERG: At first I was very intimidated, but he just turned to me and said, in a very gentle manner, "I will be the easiest person you've ever worked with-either in the cast or on the crew.' And he's absolutely right. He always wants to know from me how he should play a scene. He never assumes that he knows how to play it before having a meeting with me and discussing how it should be played-which is rather unusual. He doesn't quite know the character as well as he would like to, because the character is a man of mystery. There is no exposition about this man. He comes from nowhere and exists throughout the movie on blind faith. So we had to sit down and create a previous story so that Truffaut would understand who the character was. But he's a wonderful, wonderful man. I've already seen every film he's ever made, but now I want to go back and see them again, knowing him a little bit better. I think I'll enjoy his films twice as much now, because I know that some of them were taken out of his own experience. All the love he evokes in all of his films is what he evokes from the cast and crew and from myself and everyone else around. He is "JULES AND JIM". He is "THE

FOUR HUNDRED BLOWS". He is "STOLEN KISSES". He is "DAY FOR NIGHT". If you like Francois Truffaut's films, you'll love him in person. He is his films.

QUESTION: What about the technical challenges of shooting here in Wyoming? Has there been anything that has been especially tricky?

SPIELBERG: No, not at all. The only thing tricky has been climbing rocks every night and then trying to find your way down during late dusk, trying to find a way to walk down the mountain. The shooting has actually gone very well here. In certain ways it's been much less difficult than anything else I've ever done. Mobile is going to be impossible. The weather here has been the only tricky thing. In the morning you work for four hours under a blue dome. Later it clouds up. Then an hour later it rains like crazy. Then a half-hour after that it hails. Then it clears up again. You cannot outguess the weather. You just simply wait for the tantrum to pass.

### SPIELBERG'S HOME—BEVERLY HILLS

QUESTION: How did your original concept for "CLOSE ENCOUNTERS" develop?

SPIELBERG: I guess I've been interested in strange things that go flash in the night ever since I was a kid growing up in Arizona. The atmosphere was clear there and we had a lot of starry nights. I remember that when I was a kid. my father took me to a hillside at about 3:00 in the morning and spread out a blanket and we sat there and watched a fabulous meteor shower. It was extraordinary. I've just always had my head stuck in a cloud and I've always been interested in science-fiction, sciencefantasy, science-speculation. I made a picture when I was around 16 years old in Phoenix called "FIRELIGHT". It was more of an exploration movie along the lines of "THE CREEPING UN-KNOWN"-but it had lights in the sky. I had decided a number of years ago to do a picture about the current UFO craze, but "JAWS" came along and took me away from that idea for a while. However, Michael and Julia Phillips were interested in doing a movie along similar lines, so we joined forces in late '73. When I was off shooting "JAWS", Michael and Julia visited me on Martha's Vineyard two or three times to discuss writers, so that we could have a quick look-see at what a UFO movie would read like. It took me a year and a screen-

Looking about twelve years old in this photograph, Spielberg gleefully contemplates the model train layout which his protagonist man-child, Roy Neary (Dreyfuss) plays with in the picture. Spielberg himself favors bigger toys—such as the largest interior set ever constructed and a Mother spaceship supposedly measuring a mile in diameter.



play later to realize that the only way to make a movie like this is to sit down and write it yourself.

QUESTION: Inevitably, you must have made comparisons between "JAWS" and this project. What are your impressions in that respect?

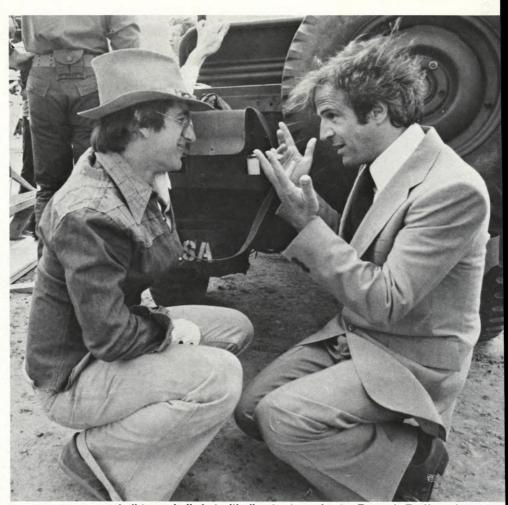
SPIELBERG: "CLOSE ENCOUNTERS" has been more of a personal movie-making experience than "JAWS". "JAWS" was a great physical challenge, but in a way it was a lot easier. A film like "JAWS" comes more naturally to my movie sensibilities than a film like "CLOSE ENCOUNTERS", which is more experimental and daring in concept. "JAWS" is really a "one-swallow" story, while "CLOSE ENCOUNTERS" contains a little more philosophical gray matter.

QUESTION: It would seem strange that, since you like to have rather firm control over your projects, you wouldn't opt to produce, as well as direct.

SPIELBERG: I sort of have an oldfashioned belief in the producer as a functioning creative stronghold, and I relay on a muscular producer. I think that the best thing a producer can do for a director is fight the bullshit battle that usually clogs all the channels of communication between the director and the film. Zanuck and Brown were so good for me on "JAWS" because they withheld the studio pressure from me. They let me make "JAWS" the way I wanted to make it, with absolutely no interference from anyone. Michael and Julia are the same way; they're like the Dallas Cowboys' defensive line. I don't think I will ever produce and direct at the same time, but if I do it will be with a very strong second voice. I think all directors need protection, and no matter where you are in your career-just beginning or very successful-everybody needs that "Colgate Invisible Shield".

QUESTION: You've picked a couple of projects that were mechanically very difficult to do. Has overcoming those difficulties been especially rewarding to you?

SPIELBERG: The problems have far outweighed the triumphs. When you finally succeed with a difficult physical effect and end up with a batch of great dailies, nobody applauds. They just let out a big sigh. That's what happened to me on "JAWS" and I didn't think it could happen that bad again, but then this movie came along and it has been twice as bad—and twice as expensive, as



Steven enjoys an eyeball-to-eyeball chat with director-turned-actor Francois Truffaut. At first apprehensive at the prospect of directing Truffaut, Spielberg was put at ease when the famous French director told him, "I will be the easiest person you've ever worked with." And he was—never seeking to take over the reins, constantly welcoming guidance in the interpretation of his role.

well. We were very ill-prepared on "JAWS" because the impending actors' strike forced us onto the beaches months before the shark, the script and we were ready. On this film we were pretty well prepared technically. We just weren't prepared for the difficulties of a set that is 400 feet long, 300 feet wide and 110 feet high. It required more electricians than actors, and more patience than I thought I could give to a film. This set took forever to light, as Vilmos will tell you—and it took even longer to choreograph 200 extras each day.

QUESTION: Tell me about choreographing those extras.

SPIELBERG: Chuck Meyers, the Assistant Director, has probably had more experience with crowd control than a Chicago cop, and he really knew how to choreograph the atmosphere people. What Chuck did (and what no A.D. has done before in my short experience with making films) was to write a script just for the atmosphere people. Everybody had a character; everybody had a nickname; everybody had a raison d'etre. We had

these extras responding not only to unidentified flying objects, but to "invisible" unidentified flying objects that we would matte in later. We all felt a little silly—the 200 of us—staring up at the sky and pointing to 17 electricians 90 feet up on a catwalk who were, in turn, shining arcs down on us. It was really kind of embarrassing.

QUESTION: You have an interesting dichotomy to contend with in this picture. You are dealing with creatures and craft presumably from outer space, but your main concern is with very mundane terrestrial characters. Did keeping the two elements in proper perspective present any difficulties for you?

SPIELBERG: It was my notion years before I began collaborating with Doug Trumbull that a versimilitude be created, that the effects be in bizarre counterpoint to the mundane reality we city dwellers view as nightlife—telephone poles, trees, highways, Jack-in-the-Box, McDonald's, drive-ins, car washes. I wasn't interested Continued on Page 58

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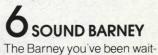


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# THE SOUNDS OF SILENCE AND THINGS THAT GO "FLASH" IN THE NIGHT

By FRANK WARNER

Supervising Sound Effects Editor

My first encounter with "CLOSE ENCOUNTERS OF THE THIRD KIND" came while I was still working on "BOUND FOR GLORY". I received a call to come down to Alabama, where the company was working inside big hangars. I'd had a brief contact with Steven Spielberg when he was on "JAWS", but only over the telephone. I had never actually met him, so the trip to Alabama was a kind of introduction. The idea was that I would visit the set. Then, if the chemistry between us was right (and it was), we'd take it from there.

He accepted me and I looked over the set and tried to determine what should be recorded prior to their striking the set and returning to Hollywood. I talked to the recordist and made certain requests which he later fulfilled.

Then, after I'd finished "BOUND FOR GLORY", I started working by myself from the script in an abstract sort of way. I developed in my mind certain methods for approaching the project and I began accumulating sounds and experimenting with them in various ways.

I have a personal library of sounds that are my own and these add up to more than a million feet of film. They're all catalogued according to a system that I can relate to. When I start a new film project, I run through these sounds to get ideas—

sometimes quite abstract ideas. I try to come up with something unique, a way of treating sounds in different ways in order to get away from their original sources. In the case of "CLOSE ENCOUNTERS", these modifications involved reversing, slowing down and re-equalizing certain

I knew that I would need certain background sounds for the sequences on the big set where all the cubicles were set up with scientific equipment. There would be electronic sounds and computer sounds and that sort of thing, all of which I had in my primary library. So I started to assemble a library of sounds specifically for this picture.

Then, when Steven returned to Hollywood, I started having meetings and discussions with him. We worked in the cutting room with an awful lot of leader be-

multi-layered effects, many of which have never before been heard by earthlings, add up to a dazzling stereophonic Dolby-enhanced sound track ibrary of sounds that cause, of course, this was to be one of

Fourteen weeks on the dubbing stage and the creation of a vast array of

the biggest optical effects pictures that had ever been made and nobody knew at that time exactly what those effects would look like.

Certain sections of the film would come together in a form that would allow us to see the continuity and I would do what we call "temp dubbing"—putting sounds temporarily to a sequence so that we could review it in a more complete form. From there we could expand the concept to include additional ideas.

At first we worked with sounds that I had previously assembled. Then we started generating new sounds and working them in. We had some electronic sound equipment brought onto the dubbing stage, so that we could look at a scene and actually sound it—make a recording for it then and there. Working side by side, we tried many different things.

The most difficult job in creating the sounds for this picture was to make the happenings believable—and not go too far. The trick was to make the sounds effective without getting cartoonish. That was always my big fear. And, of course, from our very first meeting Steve and I had agreed that we would stay away from all space sounds of the type that had been used in pictures in the past and we would avoid anything that sounded electronic. Interestingly enough, it's possible to use an electronic instrument without having the result sound electronic.

The idea that I picked up immediately during my preliminary discussions with Steve was that in this picture there was to be a kind of "presence" of something unknown. We decided that in the sequence just prior to the arrival of the UFOs to disrupt the girl's household, that presence would be expressed simply as silence—or more accurately, a cessation of normal ambient night exterior sounds—crickets, birds, etc.

We tried it and it worked, so that method became a pattern which we used throughout the film. When an accustomed sound stopped, it became a signal that something big was about to happen. Then, when the shattering experience was all over and everything had become visually peaceful again, we'd start the sound up very subtly. Maybe just one cricket at first, then two, then a distant

The first tour de force of sound effects in "CLOSE ENCOUNTERS OF THE THIRD KIND" occurs when UFOs besiege the home of Jillian Guiler (Melinda Dillon) and all hell breaks loose. Jillian is terrified, but her three-year-old son Barry (Cary Guffey) is absolutely delighted to see his toys come to life and to meet head-on the cunning Extraterrestrial creatures, who are little people like himself.



dog barking. It was as though one individual creature had poked his head up over a rock and said, "Wow!" Then another said, "But it's alright now." Then soon there would be the chorus of individual sounds, just as before.

I mentioned earlier the practice of modifying ordinary sounds in various ways in order to arrive at something really unusual. This is done by reversing or slowing down or putting together combinations of the two. I do all of this by hand myself. I don't create these variable sounds electronically. I put them on a tape recorder and vary them with my hands, because I get more feeling for the effects that way and can work in and out of things better. I can slow the recorder down to a dead stop or let it go at high speed. I go back and forth a lot and keep listening to the sound until it gets into the area of the effect that I'm after.

I'll run tracks upside down and backwards and through the base side of the film and everything, until I'm on to the track of something interesting, and then that might even lead me into another sound. If I want a rhythmic (but not pulsating) effect, for example, I might take the sound of a pile driver and pitch it up or down.

The opening sequence of the picture, which takes place supposedly in the Mexican desert, has wind blowing through it constantly for about seven minutes. But rather than just laying in one heavy wind sound, it had to be changed for every camera angle. The wind had to sound different underneath the wing of an airplane or around the cockpit. Every cut had a different wash of wind over it. That seemingly simple wind effect was actually a very involved thing to achieve and it called for "painting" the sound in, rather than just placing it there. But all this helped that sequence to become one of the most interesting openings I've ever seen in a film. It creates dramatic excitement and audience involvement right away.

I hat sequence was filmed in its entirety with wind machines, but all the dialogue had to be clear. Every squeak of a board, rattle of a fence or shaking of an airplane had to be laid in, and then the whole thing had to be washed with the wind sounds. The final touch, of course, was the addition of the music.

The first encounter that Roy has in his truck when he's on the road called for tremendously detailed sound and it all had to be made for the sequence. Everything inside the cab of the truck goes weightless and starts flying around. Paper clips float up and hit the ceiling, papers swish around, the radio goes on and off, the ashtray opens. Just outside the truck the mailboxes start rattling and



Preparation for the filming of the first encounter with UFOs by Roy Neary (Richard Dreyfuss) while stopped at a railroad crossing in his truck. A wild *mélange* of sound accompanies such phenomena as mailboxes rattling violently, a steel railroad signal post twisting and ringing its bell, sundry articles flying about weightless in the cab of his truck and the radio flipping on and off. Meanwhile, all of the natural ambient night sounds have ceased.

the railroad signal starts twisting. Everything is being affected by the UFO.

Then, when the craft moves away, we see a shaft of light hitting the road and there's a sound that goes with it. It's not an explosion at all, but something slightly metallic—more of a hollow boom, but very delicate, just barely audible. That's a matter of reality, according to the reports that have been made about such craft.

I feel that it's important to be honest with the sounds you create for a film. This means, ideally, that you actually go out and record the sound of whatever is called for in the script. But sometimes the sound of the real thing doesn't sound real on the track, and in that case, it's better to work with something totally different that will produce a more realistic sound. In other words, you can't lock yourself down to saying that because it's the real thing it's got to sound right. Generally it's just the opposite. "Right" is what sounds right.

A good example of what I'm talking about happened in the sequence where Neary has his first encounter in the truck. We had to create the sound of the metal railroad standard twisting in the ground and shaking the bell. We tried actual metal twisting and all sorts of things. But

we had great difficulty getting the right sound. Then we noticed that the chair I happened to be sitting in had a peculiar kind of squeak. We recorded that squeak and slowed it down and equalized it. Then we added to it the sound of ground being moved, which we made in the earth itself. The result sounded very believable.

One of the greatest challenges was working out the complex series of sounds to be used in the sequence when the UFOs attack the house. First, we know that there is a tremendous happening outside the house and in the surrounding area. Then it starts to affect the people and mechanical things inside the house. Toys start to move. Things are happening under the house, coming up through the heater ducts. Something lands on the roof and tries to come down the chimney. Inanimate things in the house start to move. Appliances in the kitchen start running and shaking violently. Yet we still don't see anything prior to the boy being taken away.

The first question in approaching this sequence was: What does an ET (Extraterrestrial) sound like when it comes into contact with something? In this case, they land on the roof and try to go down Continued on Page 92



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## FROM THE PRODUCERS' POINT OF VIEW

The young co-producers of "CE3K" talk about their four-year siege of getting the project off the ground and onto the screen

## JULIA PHILLIPS (On location in Wyoming)

It has taken two-and-a-half years to get this picture off the ground. It's been that long since Steven first came to Michael and myself with his notion about UFOs and Watergate.

Two preliminary screenplays were written by other writers, but they weren't satisfactory. At that point Steven was just finishing "JAWS", but he went to the Columbia people and said, "I would like to write this myself. I believe I can do it."

The Columbia people went along with that and, to their credit, didn't even ask to see the other two scripts. So Steven wrote his screenplay and, because he was having a reaction to "JAWS" and all that water, he said, "I never want to do a location picture again." As a result, the first draft of his script was budgeted for the backlot, and it came out to \$4,100,000. Columbia took a deep breath and approved it.

Then, over a period of months, the script started to metamorphosize, and the project began escalating and growing with each rewrite. By now it's a rainbow script and we've gotten into goldenrod pages because there have been so many changes. And, of course, as the script changed, the budget changed. It

Former publications specialist Julia Phillips first produced "STEELYARD BLUES" with Michael Phillips before scoring solidly with "THE STING" and "TAXI DRIVER".



went to \$5,500,000—then, in one quantum leap, to \$9,000,000. Steven and I were in New York researching water and power companies (because the lead character works for one) when the computer spat out the figure of \$9,000,000, but by the time we came back, Clark Paylow (Unit Production Manager/Associate Producer) had somehow edged it back down to \$6,800,000.

However, the scope of the picture kept on escalating until, as of now, our approved budget is \$11,900,000. I think that's probably the largest budget Columbia has ever approved and it indicates a great deal of faith on their part. I'm talking a lot about money, but, unfortunately for me, it's probably the last thing I think about. I'm more concerned about whether the picture is esthetically pleasing and about people's health and safety (which, I've learned in this business, you can't be unconcerned about).

At any rate, one of the things I feel proudest about is having been able to deliver to Steven everybody he wanted on the picture—excellent people like Vilmos Zsigmond, Joe Alves, Doug Trumbull, Rick Dreyfuss and Francois Truffaut—people who are difficult to get.

We've been very lucky in many ways. We haven't had any of those divisions of crew and ego battles that come down on so many movies and start so early. This is just a really fine, fine crew, and everything has been moving very smoothly.

The footage we've been getting so far is terribly exciting, and the dailies we saw yesterday are the most exciting of all. Steven is coordinating and choreographing helicopters and actors in a way that has great sweep and fluidity. The photography that Vilmos Zsigmond and his operator, Nick McLean, are getting is really extraordinary. I'm terrifically excited about the caliber of performances of Rick Dreyfuss and Francois Truffaut-both instances of wonderful casting. What the actors have done is far beyond what I expected. But, of course, I expected a lot because I think Steven is a genius and he has a lot of other geniuses here working for him. Steven is a showman. Somebody the other night said that he's Barnum and Bailey, and that's about right.

I still haven't fully accepted the idea that we're actually making this movie, because it's taken so long to get it off the ground. But I love the tone of it. It's going to be sort of Hitchcock—scary and very

funny all the way through. The payoff at the end is the meeting with the extraterrestrials and they really are adorable little people. The last five minutes of the film are really positive and enchanting—and I love the fact that it's positive, especially since my last movie was "TAXI DRIVER".

I don't think that "CLOSE ENCOUNTERS" is going to look very much like the movies that people have become accustomed to, but it will be thrilling—and I do think that when people walk out of this movie they are going to believe that there are UFOS.

I've been asked if I believe it, and the answer is no—not yet. I haven't read anything that convinces me that they are what some people say they are. Of course, I believe absolutely that there is life in other galaxies and that there could be intelligent beings whose technologies are sophisticated enough to allow them to travel across galaxies and come visit, but I just don't know why they would want to waste the time—unless we are being observed in kind of the same way that we observe rats and guinea pigs, which is not beyond the realm of possibility.

But as for the UFOs being from outer space—no. Frankly, I've always thought that these things are ours.

Former lawyer/market analyst Michael Phillips was active during early scripting and budgeting stages of "CE3K", reappearing to lend his talents during post-production.



### MICHAEL PHILLIPS (During the post-production phase in Hollywood)

Our involvement with the project that eventually became "CLOSE ENCOUNTERS OF THE THIRD KIND" actually began about four years ago when Julia and I were on the Universal lot doing "THE STING" and Steven Spielberg was doing "SUGARLAND EXPRESS". Steven and I discovered that we had a mutual interest in UFOs and science-fiction in general, and he and I and Julia became friends.

One day he came over for dinner and told us of his basic idea of combining UFOs with a kind of Watergate coverup. We had seen "DUEL", which I think is the best TV movie ever made, and we became quite excited about the idea of working together. Originally two different writers worked on the idea, but neither of them came up with exactly what Steven had in mind, so he said, "To hell with it; I'm going to write it myself."

We got ourselves into a funny situation right at the outset of this project because Columbia Pictures asked us to come up with a budget figure. We answered that since we didn't even have a script, we couldn't lock down a budget. But they asked us to give them a figure, so we gave them \$2,700,000, which at the time (this was prior to "JAWS" and prior to the release of "SUGARLAND EXPRESS"), we felt was the upper limit of what we could be entrusted with.

Then, due to the problems of getting a script developed that we really liked, we were delayed and Steven was offered the opportunity to do "JAWS". When he came back it was a whole new ballgame. Suddenly he was a much better risk from the studio's point of view and he was given free rein to come up with the best that his imagination could conjure—and the new budget went quite a bit higher than the original figure.

My day-to-day involvement in "CLOSE ENCOUNTERS" was concentrated during the first two years when scripts were being written and preliminary budgets sketched out. Then I came in again during the post-production phase, but Julia took care of the actual producing job on this movie. I would say that this has definitely been her show and that I've been in a secondary role. We've found that we work best when there is one producer in charge of all responsibilities, but with the other producer emerging from time to time as needed. In the case of "THE STING" and "TAXI DRIVER", it was my role to be on the set, but on "CLOSE ENCOUNTERS" that was her role. The blood and guts labor of making this film was hers.

Continued on Page 106



Julia Phillips seems dwarfed by Doug Trumbull's huge front projection rig beneath which she sits on the "Crescendo Summit" set inside former dirigible hangar in Mobile, Alabama. The deceptively diminutive Julia is a powerhouse of energy and determination—exactly the qualities needed to bludgeon through such a complex and demanding project. She was super-supportive of Spielberg; leaving him free to concentrate on writing and directing.

Julia chats with Francois Truffaut, whom she calls "an instance of wonderful casting". She is proudest of all of having been able to "deliver" everyone Steven wanted on the picture—including such top talents as Vilmos Zsigmond, Joe Alves, Doug Trumbull, Richard Dreyfuss and Truffaut. She will next make her debut as a director on the film version of "FEAR OF FLYING".



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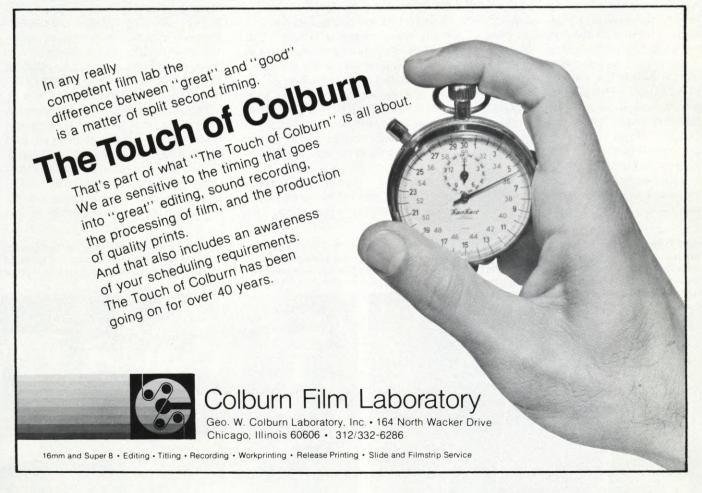
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#### BEHIND THE SCENES Continued from Page 26

With increasing belief has come increased controversy. Reports of close encounters have brought fear and curiosity, conjecture and debate.

Is the phenomenon fact or fancy? Has there been a government cover-up? Is intelligent life outside our universe observing us now? Does it pose a terrifying threat to mankind? Or does it open fantastic vistas of a future life advanced far beyond the wildest imagination?

#### About The Filmmakers . . .

"CLOSE ENCOUNTERS OF THE THIRD KIND" was filmed under the leadership of a talented team of experienced artists with major successes to their credit, yet characterized for the most part by a surprising youthfulness.

Steven Spielberg, 29, wrote and directed "CLOSE ENCOUNTERS OF THE THIRD KIND" from his own original story idea. It is his first film since "JAWS", the screen's all-time boxoffice champion. For "JAWS", he was named Director of the Year by the United Motion Picture Association and nominated as Best Director by the Directors Guild of America.

Today, Spielberg ranks in the forefront of the screen's most successful directors, known and respected as a young man of multiple creative talents, boundless energy and an ability to accomplish the seemingly impossible on film.

But, in 1973, he was still editing his first motion picture for theatrical release, "THE SUGARLAND EXPRESS." It later was to draw widespread critical praise. Noted reviewer Pauline Kael wrote in The New Yorker magazine: "This is one of the most phenomenal directorial debut films in the history of movies."

Until then, Spielberg's recognition had stemmed from outstanding achievements in television, particularly as director of the television movie, "DUEL". Released in theatres abroad, it set new boxoffice records and won a number of the major European film festival awards.

Spielberg was preparing "JAWS" and editing "SUGARLAND EXPRESS" when he wrote the first 25 pages of his script for "CLOSE ENCOUNTERS OF THE THIRD KIND".

Producers Julia Phillips, 33, and Michael Phillips, 34, were similarly involved in post-production work on "THE STING" and the preparation of "TAXI DRIVER".

Spielberg's idea for his next motion picture embraced a vision of a very special entertainment, one that would be both significant and hold strong appeal for the mass audience. As are millions the world over, he was fascinated and aroused by extra-terrestrial phenomena and the questions they provoked.

The Phillipses' reaction to this idea was instantaneous. They took it to Columbia Pictures where it met with equal enthusiasm.

By now involved in "JAWS", Spielberg devoted his evenings to writing the full screenplay.

The subject was one that always had intrigued him. At the age of 16, as a high school boy in Phoenix, he had filmed a 2½-hour, 8mm film titled "FIRELIGHT", about scientists investigating strange lights in the sky.

Julia Phillips and Michael Phillips previously were co-producers of "THE STING", sixth highest-grossing film of all time and winner of seven Academy Awards, including Best Picture of the Year, and the highly acclaimed "TAXI DRIVER". With "THE STING", Julia Phillips became Hollywood's foremost woman producer and the first woman in that key capacity to win the coveted Oscar.

A native New Yorker, Julia Phillips first evidenced her keen story sense in positions with McCall's magazine. The Macmillan Co., and The Ladies Home Journal, and next as east coast story editor for Paramount Pictures. Then, after associations with Mirisch Productions and First Artists Productions in New York, she came to Hollywood.

Michael Phillips, born in Brooklyn, earned a law degree from New York University's law school, passed the New York Bar and for two years was a financial analyst on Wall Street.

Their description of the role of the film producer is "the one who puts it together and keeps it together, from the beginning to its eventual appearance in theatres.' One or the other is on their movie's set almost daily for all their productions. Julia Phillips declares: "The producer, the good producer, gets intensely involved. It requires great persistence and determination just to get a motion picture made." Thus, Michael filled the role of on the set producer for "THE STING" and "TAXI DRIVER", while Julia was present throughout the long and arduous filming of "CLOSE ENCOUNTERS OF THE THIRD KIND" in Alabama, Wyoming, India and Hollywood, available to solve whatever problems might arise.

Douglas Trumbull, visual effects coordinator, is called by director Steven Spielberg, "the next Walt Disney."

The magic Douglas Trumbull brought to the motion picture screen by his special photographic effects for Stanley Kubrick's "2001: A SPACE ODYSSEY" reached dimensions previously unapproached. Yet, the visual effects he now has created and supervised for "CLOSE ENCOUNTERS OF THE THIRD KIND" are, in his words, "an extension" of that.

Trumbull was Spielberg's only choice for the job. But, aware that since Kubrick's film, Trumbull himself had directed a space drama, "SILENT RUNNING", and may have turned away from designing special photographic effects for others, Spielberg was hesitant to ask him. After trying unsuccessfully to find

(LEFT) Richard Dreyfuss, playing the key role of Roy Neary, a Muncie, Indiana Everyman, looks up into near-blinding lights from an unidentified flying object, as he experiences his first encounter with the alien craft at a lonely railroad crossing. (RIGHT) On the verge of emotional collapse after his sighting of the UFO, Neary drives frantically into an evacuation zone, blindly driven by an obsession to reach a mysterious rendezvous landmark injected into his subconscious by his contact with the UFO.





another qualified creative talent for the task, he returned to Trumbull, his first choice. When Spielberg detailed the project, Trumbull's immediate response brought an enthusiastic appearance.

"I've been interested for several years in doing a UFO film myself, and Steve's story struck a chord with me," he says. "The idea of creating UFOs with what we have at our disposal, and making them seem absolutely real—that was challenging and appealing."

For the demands of "CLOSE ENCOUNTERS OF THE THIRD KIND", Trumbull and his company took over an entire 13,500-square foot building, converting it into a complete movie studio. Installed were rooms for developing, optical printing, and editing; elaborate filming "stages" with dolly tracks running horizontally and vertically and electronically operated control booths; wood shop, metal shop, paint shop, and another for constructing miniature sets. There also were areas for maintaining the intricate cameras and lights and for carrying on never-ending experiments with the new processes, techniques and equipment involved.

Here was created the film magic for "CLOSE ENCOUNTERS OF THE THIRD KIND", bringing to culmination the personal vision of Steven Spielberg.

Elsewhere, the location filming of "CLOSE ENCOUNTERS OF THE THIRD KIND" completed, vital and unusually complete post-production operations went into high gear.

A stone's throw away from Trumbull's facility, in a private high-security apartment overlooking Marina del Rey, Spielberg set up shop for the critical editing of the thousands of feet of exposed negative.

All normal furnishings removed, the apartment was transformed in into a fully equipped, film editing department, with the most modern viewing, cutting and splicing machines and rack upon rack of film reels.

Here, in complete privacy and under close security, away from the constant interruptions that would have proved distracting in cutting rooms within a major studio, Spielberg turned his attention to what he has called "the most creative part of filmmaking," putting his motion picture into its final form.

Spielberg was joined in the task by film editor Michael Kahn and two assistant editors. Kahn's work on such motion pictures as "RETURN OF A MAN CALLED HORSE" and "BUSTER AND BILLIE" and as an Emmy winner on the motion picture-for-television, "ELEANOR AND FRANKLIN", had established him as one of the most skilled in his craft. Spielberg calls him "the most creative and en-



On a hillside on the outskirts of Bombay, India, thousands gather to chant an unusual five-tone combination of musical notes which they have heard emanating from a mysterious object in the sky. It is a key phrase of the sound and color language used by the extraterrestrials in their effort to communicate with earthlings.

thusiastic film editor I have ever worked with."

The editing site enabled Spielberg on a moment's notice to join Trumbull in supervising the special photographic effects, or reach producers Julia Phillips and Michael Phillips at the Columbia Pictures offices.

There, he still would film necessary inserts. And there, important sound mixing, dubbing, looping and other postproduction tasks were in progress.

#### About The Music . . .

Meanwhile, at the same location, Academy Award winner John Williams was conducting the recording of his elaborate music score, utilizing a 110piece orchestra.

The selection of Williams as musical director was made because of his feeling for the type of music needed for the film, having recently completed the scoring of "STAR WARS". He received the Oscar for his music for "JAWS" and his scoring of "FIDDLER ON THE ROOF". He has been nominated eight times. He twice has won television's prized Emmy Award-for "HEIDI" and "JANE EYRE". In October 1976, Williams was further honored by the presentation of his Command Performance Concert for the Queen in London's Albert Hall. He has composed nearly 40 motion pictures scores.

The director of cinematography on "CLOSE ENCOUNTERS OF THE THIRD KIND" was Vilmos Zsigmond, winner of the Best Cinematography Award from the National Society of Film Critics for "THE LONG GOODBYE". His

outstanding camera work also has been evident on such films as "OBSESSION", "McCABE AND MRS. MILLER", "DELIVERANCE", and Spielberg's "THE SUGARLAND EXPRESS".

For additional American sequences the Director of Photography was William Fraker. For the special India sequences the Director of Photography was Douglas Slocombe. Two other outstanding cinematographers, John Alonzo and Lazslo Kovacs, contributed their talents to special scenes.

Dr. J. Allen Hynek, who served as technical advisor and consultant on "CLOSE ENCOUNTERS OF THE THIRD KIND", has been referred to as today's premiere authority on the UFO subject.

Sightings of unidentified flying objects and what they might signify have met with ridicule and antagonism on the one hand and stoutly defended on the other.

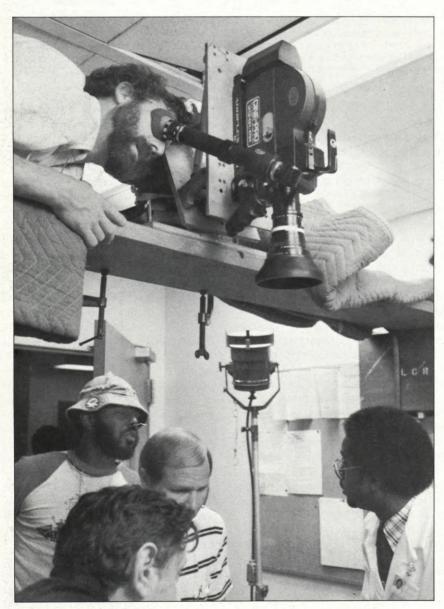
Says Dr. Hynek: "Whatever one may think about UFOs—whatever one may believe about their physical reality—whatever one may speculate about their origins, one fact has stood out over the past quarter of a century: UFOs continue to be reported by people the world over, and in all walks of life.

"The contents of these reports continue to intrigue, mystify, entrance and engage our imaginations. Even the skeptic can barely fail to sense the dramatic element in a well-documented, multiple-witnessed report of a UFO close encounter."

He admits that, as a scientist (one of the world's foremost astronomers and Continued on Page 86

# Arri 16SR on location in tight quarters: flexible unobtrusive and fast.

"Producers like quality," says Jack Cooperman,
"But most of them like speed even more.
With the 16SR, I found it a lot easier than before
to get good production quality fast."



"10mm focal length on this one," says Mr. Cooperman. "I had to keep my body up high, out of the shot. The camera's small size, light weight and adaptable finder let me rig the whole thing with *one* plank, and get right up against the ceiling. A fast setup, and *compact*."

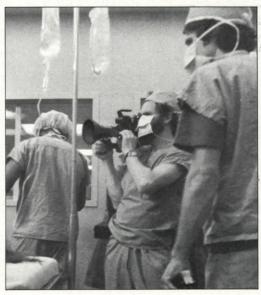
Until he shot this segment of a March of Dimes documentary Special, Jack Cooperman had never used an Arri 16SR. Here are some of his comments:

"We were shooting medical staff and patients at a hospital. To catch the action while it was spontaneous, and to keep out of everyone's way, we had to be fast and flexible."

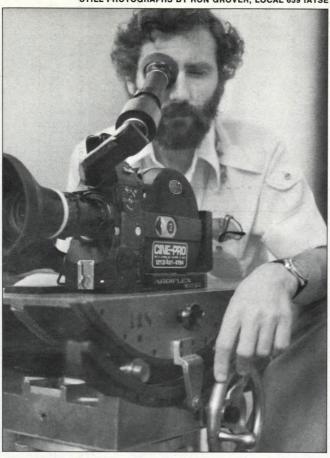
"I found it *pleasurable* to work with that camera," says Mr. Cooperman. "It's a studio-quality tool; and it does everything you expect, plus quite a few *new* things."

Produced by March of Dimes Foundation; Ed Franck, Director; Jack Cooperman, Director of Photography; Jack Green, Camera Operator.

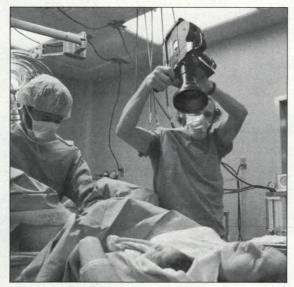
"Shooting in the crowded Operating Room, we had to keep out of everyone's way. No tripods."



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"For one move, I needed to start next to the wall," says Mr. Cooperman. "With the SR's amazing viewfinder, I could put the Worral head *against* the wall, and still see what I was doing without mashing *my* head."



"The birth sequence required unobtrusive shooting. The cable-free battery on the camera's back helped a lot."

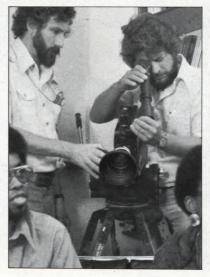
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"What was important to me about this camera was the ability to keep the creative flow going at a *steady pace*. The fast setups and reloads were ideal for unscripted, spontaneous action."

"I'd lock it off, swing the finder over for the Director, swing it back, and we'd roll. *Instantly*."





#### MY CLOSE ENCOUNTER Continued from Page 29

looks fit and healthy and is almost obscenely cheerful for so early in the morning. He introduces me to the picture's co-producer, Julia Phillips, who has just arrived on the set. She manages to look chic even in jeans and boots. Slender and slight though she is, it's obvious that this is no frail frail, but rather a lady put together of stainless steel. She is also a down-to-earth, no-nonsense, lays-it-on-the-line sort of gal. I like her—even though she doesn't believe in UFOs.

Nearby is the star of the picture, Richard Dreyfuss, looking about 30 pounds more corpulent than when last I saw him. He is puffing away on an Exercycle which he has brought along. "Does that thing do any good?" I ask. He shrugs. "It's desperation time," puffs he.

Francois Truffaut, who plays a key role in the picture, gets up from the outdoor makeup table. Having met once before, we exchange quiet greetings. The shy, diminutive Truffaut appears to be a bit lost in all this hustle-bustle and seems reluctant to speak in his not-yet-perfected English.

In a clearing a short distance away, Vilmos is setting up for what he will later describe as "the most difficult shot I've ever made in my life." It involves a large military-type helicopter packed with some ten or more people. During the course of the scene, a scuffle breaks out as they attempt to get off the aircraft, only to be crammed back in by military guards. What makes it difficult is that

Steven wants the scene to start with the camera on one side of the plane, pull back through the people-packed interior and out the other side. This presents two major problems. One is that even with the Panaflex mounted on a 10-foot board attached to the dolly, it can just barely make it through the people massed in the aircraft. Second, because a 30mm anamorphic wide angle lens is being used. there is nowhere to hide lights aboard the helicopter. Brutes and huge reflectors must be positioned outside and pulled back just on cue as the camera moves. It's a tough one, but it gets done surprisingly fast.

The rest of the afternoon is devoted to shooting scenes of Dreyfuss and Melinda Dillon evading the guards in their headlong flight toward the Tower. After that the whole crew packs up and heads for the base of the soaring national monument.

I am amazed at what I see when we get there: boulders the size of entire rooms are scattered one on top of the other along the wide expanse of the talus slope surrounding the central shaft of the Tower. These gigantic rocks have, over the aeons, fallen from the vaulting polygonal columns (caused by very rapid cooling) that streak skyward up the sides of the monolith.

We begin to climb these rocks in order to shoot segments of the sequence in which our protagonists flee up the sides while being attacked by helicopters attempting to gas them off the mountain. It's a rough haul up with all of the equipment, but the actors and crew have all been there before and they take it in

stride

When we are quite high up and multiple cameras are positioned, the helicopters, having been summoned by radio, begin to appear overhead, scanning the mountainside with incredibly bright searchlights.

A word about these unique lights, which have been provided by Continental Camera Systems of Van Nuys, California: The official designation of the unit is "SX-16 Nightsun Xenon Searchlight" and it provides 50X bright moonlight at 3000' altitude, 300 ft. beam diameter. Drawing 62 amps of 28-volt DC current, it provides 1600 watts of night-flying daylight, 25,000 lumens . . . from 3 to 30 million beam candlepower at a color temperature of 5900°-5950°K. The whole system is remotely controlled by means of a joystick lever.

There is no other artificial lighting being used on the scene—only the probing SX-16 searchlights from the helicopters. It is now the "magic" hour, but shooting continues as pass after pass of the helicopters is filmed and the sky grows progressively darker. The company finally wraps at nine o'clock, when it's so dark that it would take parapsychology to get an image onto the film.

It's been a long, hard 14-hour day and when it's over I say to Steven, "I'll bet no one will have to rock you to sleep tonight."

"Sleep?" says he, looking at me as if I'm a bit daft. "I'm going to screen '2001'."

And he disappears into his Winnebago.

A segment of the giant Box Canyon set, which the author calls "the biggest interior set I've ever seen—not excepting the triple nuclear submarine pen for 'THE SPY WHO LOVED ME'." Rampaging hurricane winds and rain repeatedly tore at the giant tarpaulin enclosing one end of the former dirigible hangar containing the set, but crew members, accustomed to about one such cataclysm per week in Alabama, took it all in stride.



The next day is devoted almost entirely to shooting an intimate sequence featuring Truffaut inside one of the military-type modules. It's very close quarters in there, what with all the lights and such, but shooting goes on hour after hour, with intricate exterior action also having to be staged because the camera is picking up what is going on outside a window in the background of the set.

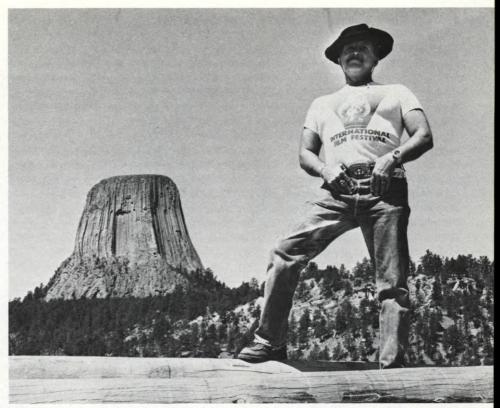
In the late afternoon another old friend arrives-special effects wizard Douglas Trumbull—and there is a warm reunion. One of my favorite people, Doug has hardly changed in appearance or manner during the decade that I've known him. An unlikely looking wizard, he comes on more like the quiet, easygoing guy next door who builds soapbox racers for all the kids on the block. But brainwise, he's the Six Million Dollar Man (or perhaps more, allowing for inflation). Ever since I saw his stunning work in "2001: A SPACE ODYSSEY", Doug has been one of that very few to whom I've applied the term "genius", although I am sure he would bridle at any such pretentious appellation.

Doug assures me, rather mysteriously, that what got onto film in "2001" will be kid stuff compared to what he has in mind for "CE3K". He has come to Wyoming with his crew and a 70mm camera to shoot background plates around Devils Tower for his front projection system.

That night we watch dailies (in what appears to be a converted church basement) and I get just a glimpse of the magic he has in store. Doug shows some tests in which white rolling clouds seem to form slowly against a black field. As it turns out, these are chemical clouds formed in a tank of water back in his Marina Del Rey magic factory and they will ultimately boil across the skies in "CE3K", as UFOs streak toward Earth.

Included in the dailies are stunning scenes of the helicopters buzzing Devils Tower which Vilmos had shot a couple of days before. The darkest shots were made about 9 p.m., I'm told, but the detail is all there on the film—without pushing. The latitude of the 5247 is incredible!

When I fly back to Hollywood a few days later (having been asked to rejoin the company when it shoots in the upcoming Mobile, Alabama location), the plane circles Mt. Rushmore after takeoff. I am properly awed at the sight of the giant faces of four U.S. Presidents staring out in timeless dignity from the mountainside, but I have the odd feeling that they will appear small compared to the scope of what will ultimately reach the screen in "CLOSE ENCOUNTERS OF THE THIRD KIND".



On location in Wyoming, the author, hoping to be taken for one of the cowpokes who inhabit the area, strikes his fiercest "SHANE" pose against the horizon. He didn't quite make it—obviously. Devils Tower, in the background, was America's first National Monument, designated as such by President Theodore Roosevelt in 1906. The giant volcanic monolith covers an area of two square miles.

#### MOBILE, ALABAMA

Having been sworn to secrecy prior to my departure from the Wyoming location (no signed statements, just my word), I maintain a stony silence all through the California interim. Not a syllable escapes my sealed lips—not even during the intimacies of pillow talk—and I'm quite proud of myself. Then comes the summons to Mobile.

Now, Alabama in mid-summer is my idea of the nearest thing to Hell on Earth—but I would gladly go to Hell to see what's happening next on "CLOSE ENCOUNTERS". And so, I do.

When I arrive, it's even worse than I expected. Not only is the temperature broiling and the humidity almost total, but the company is shooting inside a sealed former dirigible hangar that must be kept filled constantly with chemical fog. It's like the first phase of Purgatory. However, I'm so awed by what is going on inside that hangar that I hardly notice that I'm slowly strangling.

The entire floor space of the giant structure, wall-to-wall, is taken up by the biggest interior set I've ever seen—not excepting the triple submarine pen set for "THE SPY WHO LOVED ME". This set, with sloping banks on three sides made up of huge boulders, is supposed to represent a kind of outdoor arena in a Box Canyon and the three sides are ringed with raised concrete levels on

which stand many large fiberglas modules filled with the most sophisticated scientific equipment. The fourth side is closed off by an enormous black tarpaulin, a couple of hundred feet wide and rising eight stories above the floor. I'm told that when that tarp is raised, the set can be extended another 100 feet at night to simulate a lighted landing strip.

Overhead—60 or 70 feet—are catwalks along which are mounted dozens of Brute arcs, 10Ks and spotlights—more big lights than I've ever seen in one place (and these are in addition to the clusters of arena-type lights that are the "practicals" in the set). Running the length of the hangar is an overhead track that supports a kind of monorail platform for lights.

But that's only the beginning. In an adjoining hangar of equal size are two additional huge sets, both built on superstructures consisting of miles of tubular steel. One is a considerable length of curved cliffside roadway known as "Crescendo Summit"—a favorite spot for UFOs to buzz. The other is supposedly a section or "notch" of the Devils Tower, somewhere near the top. Backing up these sets is a giant front projection screen—100 feet wide and the largest portable process screen in the world.

But when Doug Trumbull arrives with Continued on Page 88

#### SPIELBERG SPEAKS Continued from Page 42

in making an outer space movie here on earth. The reason I wanted the main locale to be Indiana suburbia that we can all relate to is because, if this film is to be successful, it must succeed on a lot of dangerous levels. The audience must never lose its terrestrial identity. This isn't a science-fiction movie. This isn't a futuristic film. This isn't a picture about time warp. It's about what people believe is really happening. Fifty-three percent of the American people believe that UFOs are visiting us-that we are under some sort of close scrutiny and have been for many, many years. The other half of the population doesn't. But it was important for me that I root this film in a sort of common reality.

# QUESTION: Is that why you selected such an archetype Everyman as your protagonist?

SPIELBERG: Yes. The main character, Roy Neary (played by Rick Dreyfuss), is a lower-middle-class Department of Water and Power engineer who has three children and a wife who can never get out of the house. The kids grow out of their clothes three times a year and there is a lot of domestic demand on this common man. Then one evening, during a power outage in the Muncie, Indiana, area, everything he ever regarded as normal suddenly becomes something truly extraordinary. He has a nocturnal encounter with something he witnesses, but can't explain in common-sense, earth science terms. "CLOSE ENCOUNTERS" offers food for thought, but it doesn't offer bromides for mankind. The movie gives us no solutions. It simply allows for a few explanations about what the UFO phenomenon really is.

# QUESTION: I'm sure American Cinematographer readers would like to know about some of the steps it took to get from script to screen on such an unusual and ambitious project.

SPIELBERG: The first thing I did (as I usually do on every picture) was draw pictures. Most of my initial effort was concentrated on putting down some of the set piece scenes in a continuity. I hired a wonderful artist, George Jensen, to sit with me and do one color sketch after another on the master views, and a lot of black-and-white on the coverage, and together we plotted seven major sequences—including the last 30 minutes of the movie, which is all phantasmagoria. At the same time, I hired Joe

Alves, who was my Art Director on "JAWS" and "SUGARLAND EXPRESS". I brought Joe onto the film very, very early, while Julia was still trying to bludgeon the deal through. Joe and I sat down with the script I had written and I described the main (Box Canyon) set to him. It was to be an arena, kind of like a coliseum, a great sky-harbor for some sort of cosmic meeting of the minds. I made several sketches of what I thought the encounter zone should look like, and when I was over in Europe doing promotion on "JAWS", Joe called me to say he had built a little model and would I like to fly back and take a look at it. When I returned. I found that this "little model" took up half the office. I was stunned by it. I didn't even ask him what it would cost; I didn't want to know. I didn't want the figure to kill the fun of seeing this creation of ours. But the model served a valuable purpose. When the budget, which began at \$9,000,000, went to \$11,800,000, the Columbia Board of Directors flew down for a meeting and I think one of the things that sold them, aside from David Begelman's diehard desire to make this movie-was the model, plus a lecture I gave that pretty much outlined the entire film and explained the last 30 minutes. The next day we were given our goahead to make the movie.

# QUESTION: What were some of your problems in getting that encounter zone out of the model stage and into the actual set stage?

SPIELBERG: They were horrendous. That set became our "shark" on this picture. In fact, it caused more problems than the shark-but fortunately it didn't have to turn around, submerge or surface. It just had to be there-but the concept, areawise, was so monumental that we knew we would need a dirigible hangar in which to build the structure. But first we investigated exterior possibilities. Joe took a trip to Oregon to look at Shiprock, and we looked at other places in Monument Valley, but we realized that we were going to be behind schedule enough just building this creature, without having to wait for it to stop raining on us. But even when working inside in an area so damned large, we might run the risk of creating artificial weather. We were told that in the Tillamook, Oregon, hangar, when the humidity reached a certain level, it would rain inside. That's all we needed-a rain-storm inside an enclosure. So we found a slightly smaller place in Mobile, Alabama, an abandoned Air Force base, with four tremendous adjoining hangars where we built most of our sets.

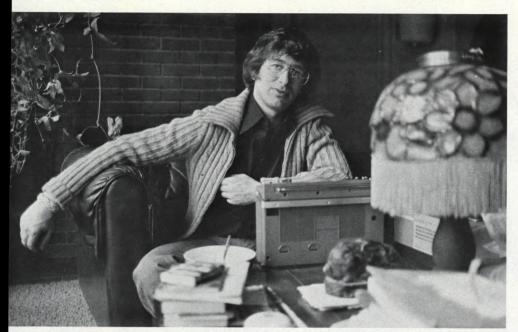
# QUESTION: How did you go about solving the special effects problems such a script obviously presented?

SPIELBERG: After I had written the script and had clear ideas of what I wanted the film to look like, I realized that I had no savvy about optical and miniaturized special effects. So I began to look for a special effects coordinator to see the thing through. I had thought of Doug Trumbull from the very start, but I'd heard he was in the amusement park business and out of the optical effects business and didn't want back in. That made me a little timid about asking him. I interviewed a lot of competent technical people in the special effects field and maybe four or five of them together would have made the perfect team, but I couldn't find one enthusiastic, driving "wilderness guide" who would take me where nobody else had gone before. I think all of us wanted to break new technological ground, because a lot of the effects I knew could not be accomplished by means of conventional technology. I even considered synthesized animation using 2,000-line resolution equipment, but the computer time is so expensive that I could have built three sharks for the cost of four saucers. Finally I met with Doug and he read the script. He came back the next day and said, "I've been waiting all my life for this kind of project to come along, and I can't wait to begin." That was the best news I'd heard since I found out that Columbia was going to give us the money. So Doug and I became a team, and we've been a team for almost a year-and-a-half.

#### MUSSO & FRANK-HOLLYWOOD

QUESTION: You've been in the dubbing studio for many weeks now. What can you tell me about the sound in this picture?

SPIELBERG: All of the sound effects in the picture have very conventional functions, but they also provide unconventional touches. When you experiment you sometimes find that by slowing down the sound of wind and mixing it with the sound of dirt in a shaking shoe box and the squeak of an antique hobby horse, you can wind up with a strangely alien effect. It's not simply a matter of going to NASA and taking the best of the actual sounds from outer space recorded during the last 15 Apollo missions. Instead, you may take the silliest cache of basement junk and kick it around and shake it and breathe into it and throw it against the wall and then put it into your stereo movie to make people gasp and fall back in their seats and say, "My goodness, where did you get those sounds?" I remember that



Younger than Alexander the Great was when he wept because he'd run out of worlds to conquer, Spielberg is currently producing one feature, prepping two more and getting set to direct his next project, an "intimate" comedy called "1941". He's had enough of epic scale films for a while, and hopes he never hears the term "special effects" again.

in "JAWS", one of our sound effects men with a Nagra simply used a combat boot that he had on to kick his Doughboy rubber swimming pool as hard as he could, so that the residual sound from the squeak of rubber and the water sloshing around would produce the effect of the shark ramming its mechanical nose against the underbelly of the Orca. In "CLOSE ENCOUNTERS" we had to find sounds for the formation of cumulus thunderheads. What does a cloud sound like when it forms? It doesn't make any sound at all, but in a movie, sometimes, no sound is worse than a hint of sound. In all the reading I've done on UFOs. 85% of the people who reported seeing them do not mention any sound whatsoever. But there seemed to be a deadness without something on the track. So, in effect, we had to create sound that suggested no sound. We created a lot of effects with a synthesizer, but we also did a lot of work with slowing down conventional sounds. For example, when you slow down the sound of Marines on the march to maybe a hundred times less than normal speed, there is a barely audible internal combustive pounding like a very low-end sump pump.

### QUESTION: And what would you use that for?

SPIELBERG: For the sound of the Mother Ship.

QUESTION: Aside from the mechanical aspects, what did you want to do with sound dramatically? What effect did you want it to have on the audience.

SPIELBERG: Mainly I wanted to create the feeling of a slightly unsettling sensation—like when you are being watched and don't know quite who is watching you or where that watcher is, but you know that there is something in the air.

#### QUESTION: Do you feel, as many do, that the element of sound has been shortchanged in motion picture production?

SPIELBERG: In the motion picture industry there is nothing more ignored and resisted than the function of sound. It's met the greatest resistance from exhibitors all around the world. Most of the theaters in this country still function with antiquated amplification systems-sort of like Vitaphone. Exhibitors refuse to change the system because it costs them money and they hate to spend money. So the studios relaliate against soundconscious moviemakers. They tell you, "We aren't making pictures for the Academy; we're making pictures for the public." But if exhibitors refuse to keep up with the state of the art, why should studios retaliate against soundschedules, computerized dubbing consoles. Dolby sound systems and all sorts of sound innovations? It's sad, but thanks to Dolby and a half-dozen sound-oriented films, more than 300 theaters have modernized their sound systems. I really feel that 20% of the success of a film like "STAR WARS" is directly attributable to the total sound experience. It's a beautiful sound system. I know that while "CLOSE ENCOUNTERS" will be shown in 10,000

theaters, only 500 of those will be able to display it in the way that it was meant to be seen and felt. That, in itself, is disappointing. I'm looking forward to the day when there will be fewer theaters with better acoustical sound systems, bigger screens and sharper pictures.

# QUESTION: How important a role does music play in "CLOSE ENCOUNTERS"?

SPIELBERG: Music plays the same role in this picture that it played in "JAWS". It supplements the story with a different point of view. It takes the experience and heightens it-which is what music should do in any good movie. I've seen a lot of movies in rough cut without music and then seen those same movies with music added and it's surprising what a difference the music makes. In Hollywood's heyday music served a much more vital function than it does today. In fact, the first generation wasn't afraid to be a bit over-sentimental and maudlin. In "CLOSE ENCOUNTERS" the music furthers the story by pointing up what the Neary character goes through and his accomplishments. It's a very emotional story.

# QUESTION: Getting back to special effects, what role do you think they should really play?

SPIELBERG: I think the best special effects are those that go wholly unnoticed. If the audience stands up, points to the screen and says, "What a special effect!"-you've failed. Speaking of "CLOSE ENCOUNTERS", because not everybody has seen a UFO. I had a certain latitude in designing my effects, but I don't think those effects varied too much from the tens of thousands of reports that have been made over the last 30 years. I was simply able to assume some creative license in making the phenomena a little bit more seductive. However, I think that some of our best effects, unfortunately, will go unnoticed by the audience at large. We'll know they are effects, but nobody else will. That's great and sort of sad at the same time, because hundreds of hours have gone into creating effects that are so lifelike. The audience will think that we went out with some very fast film and were able to photograph the stars and the horizon line and the quality of night sky that they're used to seeing with the naked eye. But the mountains and trees and hills, in fact, were all optically created and miniaturized and composited later. So many of our effects were actually just an attempt to recreate nature Continued on Page 95

#### PRODUCTION DESIGN Continued from Page 35

pieces against what will be the world's largest front projection screen. One of these, known as Crescendo Summit, is a curved stretch of roadway on a cliff overlooking the Indiana countryside. This appears early in the film and represents the vantage point from which onlookers view a spectacular display of swooping UFOs.

The other construction represents a "notch", a cleft in the rock near the top of Devils Tower. In the film Richard Dreyfuss and Melinda Dillon climb up to this notch and on the other side they see the secret base in the Box Canyon below. This section was built so that we might have more control in the climbing sequences than would have been possible in the actual location. The rock topography, again, is made of fiberglas, with gunite as a base for the structures and about an inch of topsoil over that. An interesting phenomenon is that, because of the humidity here in Alabama and the skylights in the hangar, we've actually gotten live grass to grow on top of the cement. That's something you couldn't do on a Hollywood sound stage, because you couldn't get enough sunlight in there. But this is like a huge greenhouse.

I've got an incredible construction crew on this picture. Bill Fox, who had been with DeMille and is very experienced, put these two sets together in about three weeks, and he built the entire huge Box Canyon set in three months, which is an amazing feat. The local help has also been tremendous. For some reason, I had been afraid we wouldn't be able to find good craftsmen here, but they have been excellent.

As far as construction materials are concerned, I don't think I've used anything really new—but I'm sure we've used more fiberglas than has ever been employed on a single picture before.



An example of how production design and set decoration establish character in "CE3K". This is the "playroom" of Roy Neary, a fanatical hobbyist man-child who has fun with his large electric train layout and a wide range of other hobby paraphernalia. The room was in an actual home near Mobile, Ala., bought for the film and "dressed" to express the character of the protagonist.

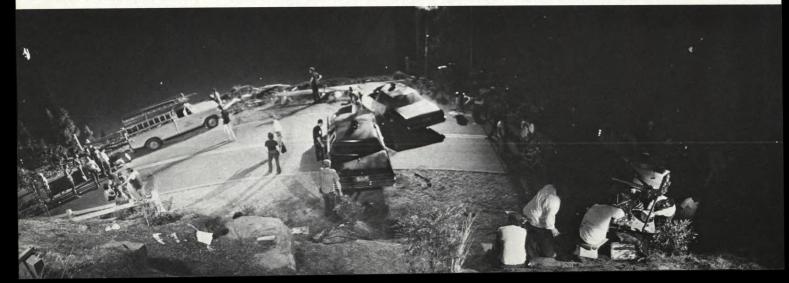
Originally I was going to go with a vacuum form concept for constructing the many modular buildings used in the Box Canyon set. In that process you make a mold and then heat plastic and suck it into the mold. I had a contractor who said he could do it, but halfway through I could see that it wasn't going to work out, so we changed direction in midstream. George Sampson, the same gentleman who made the rocks, constructed all the buildings of fiberglas and we used the plastic we had on hand for other things.

Normally, in Hollywood, we build sets of wood and it's probably unusual to use so much fiberglas and plastic, but it does give a nice clean finish. We used a modular system because it is a concept of today, and the premise in the script is that they built all these modules with sci-

entific equipment elsewhere and then flew them in huge cargo helicopters over the mountain to get them into the Box Canyon setting. So the fiberglas and plastics are "today" materials. Everything else is pretty much real. We used real cement for the platforms instead of building them out of wood. Everything that looks like steel is really steel, instead of a simulation. You can recoup the cost of steel and it does have that feeling of reality, so cost-wise I think it was a good investment.

The Box Canyon set alone probably cost \$700,000, but if we had built it in Hollywood (which would have been impossible, in any case), it probably would have cost at least \$1,000,000. So I don't think we've done badly. We've gotten quite a bit for our money out of that set,

Wide-angle view of the giant "Crescendo Summit" set built inside a former dirigible hangar in Mobile. This is a key night exterior locale, a hillside stretch of curved roadway, where a select group mysteriously drawn to the spot witnesses a spectacular "light show in the sky" staged by a galaxy of multi-colored UFOs in a joyous greeting to Earth. The largest portable front projection screen ever built backed the set to provide a background of starry skies, surrounding countryside, lighted homes and the performing UFOs.



because we've been shooting there for 30 days and it's been covered up and down and sideways.

The scaffolding that is used to support the sets and the eight-story tarp is all rented and has to be returned. You rent it at so much a foot. The tarp we got in Houston and it's made of a new nylon fabric. It's finished white on one side and black on the other, which is ideal, because the black is required for the filming, but the white on the outside reflects the heat. The tarp has been reinforced by being interwoven with some kind of nylon mesh, which makes it very strong, but even so, it has ripped on us twice. It has also come down twice and we've had to do an incredible maintenance job on it.

The basic floors of the hangars have been here since they built the structures and they're about 18 inches thick in order to support the weight of aircraft. But then we had to build levels above the floor and concrete block walls. The extra levels were built of the red clay they have here, which compresses very well, and on top of that we laid a 3-inch concrete slab, because we knew we were going to have to support cranes and what-have-you on top of it. In addition, we had to have fluorescent lights inlaid in concrete-all with practical electricity. All of the electrical outlets around the set also had to be practical in order to run the high-speed cameras, monitors and various pieces of scientific equipment. The four main consoles in the set came from the Houston Space Center and, while we revamped the design, they are practical, as is all of the instrumentation here.

The task of striking these huge sets will be monumental and the dilemma which it presents is very frustrating. On the one hand, we hope that someone will come in and take it away-but on the other hand, we obviously don't want the items used in another film. What we are hoping is that somebody will want to salvage the materials. We have a tremendous amount of steel, and the rock, I think, could be sold for landscaping. They don't have such rocks here and ours are quite realistic. The fiberglas is also very strong. Incidentally, we have "hard" rocks and "soft" rocks. On the paths that the actors are going to climb, the rocks have been made stronger in order to support the weight, but the cost of these is considerably higher because of the extra fiberglas needed to provide such support. The rocks used only in the background are made much lighter.

When we strike the set we will come in first and strip out all of the rental equipment—all the computers and other instrumentation. Then we'll strike all the arcs and start taking the modules out.



"Only God can make a rock..."—except in "CE3K", for which 6,000 man-made rocks were created of fiberglas to surround the huge "Box Canyon" set. Using molds made in Hollywood, the rocks were made in Alabama. There were 12 basic shapes, with individual rocks being carefully set at random angles so that no repetitive pattern was discernible.

We are going to take some of the modules back to Hollywood—probably one of each type, built into some rocks, along with some walls, to be used for inserts and pickup shots.

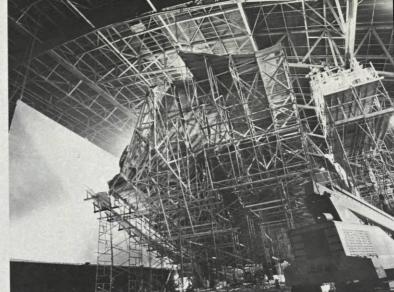
I don't think it will be too much trouble taking the cement out. We'll come in with a bulldozer, lift it up and take it out in slabs. It should pick up pretty easily, because, for the most part, it's just lying on top of the floor. It should all be gone soon.

Up to this point I've discussed only the massive sets that have been built inside the hangars, but some of the most unusual action will take place inside a little farmhouse that we found in Baldwin County, which is just across the bay from here. It's a unique small house that we completely redid for the picture. Jillian, one of the female leads, comes to this area and is staying in her mother's Victorian house while her mother lives in town. We see the influence of her taste on her own room, which she has redecorated, but as we go downstairs we see more evidence of her mother's taste, a sort of homey atmosphere. The kitchen has been modernized, maybe 15 years ago, to allow for some electrical appliances-which do rather phenomenal things in the picture. We have some very interesting effects in that farmhouse, adding up to what I would call a super-frightening experience.

The other little house is located in a neighborhood which worked out just beautifully for us and really sets the personality of our Rick Dreyfuss character (Roy Neary). It's real suburbia and is located, supposedly, in Muncie, Indiana. I actually went to Indiana and to Ohio, as well, to get the correct feel for the picture, since residential areas in the Midwest are quite different from those in Los Angeles. But as far as actual shooting locations were concerned, we decided to centralize our shooting in Alabama, since our big sets were there.

We were fortunate enough to find here in Mobile a very nice little tract area that has a slight elevation so that you can see sort of medium-priced homes that go on forever in the green, green grass. That's where we found the Neary house. We bought the house and sort of suited it to our character. I wanted it to look in the best taste that Sears Roebuck could buy, and so we followed through and gave Teri Garr (Ronnie Neary) a polyester double-knit look. She was Miss Suburbia and her house reflected that-all except one room, Dreyfuss' room. In this picture he's a fanatical hobbvist. He has electric trains and he's been through probably pigeons and just about whetever else people do in the hobby kinds of things. So you have the cutesy little living room and the bedroom, which is very, very feminine with lavenders and pink, and the boys' room (which is a mess, a typical boys' room), and then the little girl's room, which is all pink and cute. But in contrast there is this den that is just covered with every conceivable kind of gimmick. It sets Roy's character, because he's a childlike sort of man-the image that Steven wanted to give Neary, and we tried to support that image with the





(LEFT) Inside the dirigible hangar, giant cranes lift a huge hunk of fiberglas rocky cliffside into position. This was part of the vast construction representing a "notch" near the summit of Devils Tower up which the protagonists climbed to discover the secret "Box Canyon" UFO landing site below. (RIGHT) The superstructure of the set was composed of miles of rented tubular steel. In the background can be seen the 100 x 38-foot portable front projection screen.

sets and the decoration.

Roy's den was a difficult set to shoot and we probably should have built it on a stage, because when you're shooting during the summer in Mobile, Alabama with a fairly large crew in a small suburban house, it can get very uncomfortable. I finally knocked some walls out so that we could move the camera more freely. It took a while to get through that sequence, but it did set the mood and lent credibility to the character.

Since we weren't making "2001", but rather a film about a suburban family, that house was probably the major interior set, except for those we built inside the hangars.

We used many cranes on this picture because of its scope and size—sometimes two, three or four cranes at a time. We've been able to scaffold the one hangar, but we are always using the cranes to deliver people up to the scaffolding because it's so high. We can't scaffold the other hangar, so we'll have to hang arcs and people in baskets supported by cranes. Without the cranes this operation would be impossible.

Our largest exterior set was the base camp near Devils Tower in Wyoming. Steven wanted it to be in the center of a kind of disaster area, where the National Guard comes in and ropes off certain sections. We threw up a bunch of trailers, made a helipad and surrounded the whole thing with a lot of chain-link fence. It ended up being about a \$50,000 set, although one might be hard pressed to see where the money went. It went for scope, which is very important to this picture. We had four large helicopters which we had to paint OD color in order to give them a military look. The people flee toward the mountain and they suddenly break through and see very strange

things—all this scientific equipment that is being fed into the Box Canyon. A helicopter lifting a module flies over and there is all this incredible cable and boxes that say Lockheed and Rocketdyne. It all has the feel of a CIA coverup sort of thing. We designed the set so that it looks like a National Guard exercise at first, but then the coverup reveals itself. That set was really difficult because of the logistics and the weather was snowy and cold. I was happy to get out of there.

We got very little cooperation in Wyoming. They were just not friendly at all and it seemed like they went out of their way to make things uncomfortable for us. When you shoot in Montana they give you excellent cooperation, but they have

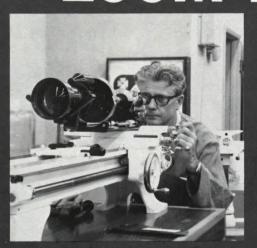
a Film Commission and Wyoming doesn't. I think that's a big point in location shooting today. You know you're going to have an easier time in any state that has a Film Commission, but if it doesn't, you have to go to every little local politician, and he gets his nose out of joint because you went to somebody else first.

I feel that "CLOSE ENCOUNTERS" will have the appearance of being a very simple picture and people will wonder where the money went, because, if we are successful, they won't be aware that on Crescendo Summit, which comes early in the film, we are actually shooting on a stage and that we have the largest Continued on Page 84

The only segment of the Mother Ship actually built on the set was this lower hatchway section which opened to emit a blinding light. Suspended from the ceiling, it weighed 40,000 pounds and was purposely constructed that heavy to hang straight and still for rock-steady mating with the optically superimposed miniature of the giant spacecraft.



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#### LIGHTS! CAMERA! ACTION! Continued from Page 33

shoot another sequence before lunch.

So that's the kind of shooting we've been doing here, and Spielberg is very good at it because he has a perfect plan in his head to start with. He knows how to do it. I am helping him technically to be able to get what he wants and he is very happy. He feels that this is the best crew he's ever had because we work so fast. We are doing the things he wants to do and he doesn't have to compromise. I think that's the basic thing for a cameraman—to help his director as much as he can, so that at no time does he ever have to compromise on a shot that he wants.

We are shooting with the new 5247 negative and I really like it. The first time I tested 5247 it was with Skip Nicholson at Technicolor and we found that it was a good film, but somehow, when I started to shoot a picture a couple of months later with the 5247, I found that the film was not the same as what we had tested and I couldn't understand it. I still don't understand it.

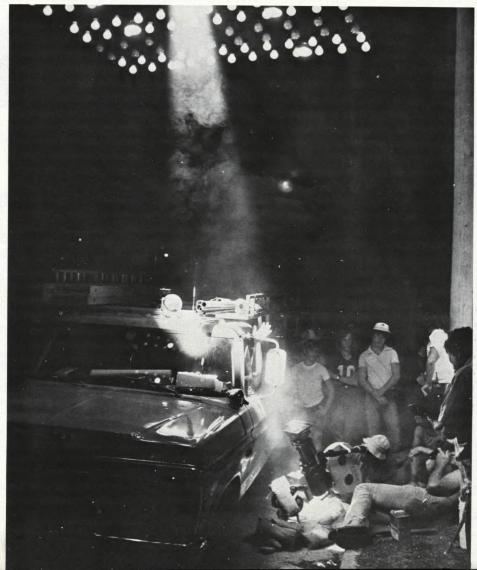
However, at that time, many other cameramen and I decided that we were not going to shoot on 5247 until Eastman improved the stock, so I went back to 5254 and shot two films on that. Before shooting started on this picture we were aware that we might have a problem shooting it with 5254 if we had to go into second or third generations for certain effects scenes. We knew that there would be many matte shots and lots of tricky post-production and we needed all the fine grain we could get from the film. So I went back and tested the 5247 again and talked to the Eastman people and they guaranteed the stock. They said, "You can be sure now that if you use the 5247 it will be much better than the 5254." So I tested it again and I was very happy to find out that this film is really fantastic. It has more latitude than the other film had. The early 5247 had a contrast problem and you couldn't shoot at night with it because it had no latitude on the underexposure side. Now I am very happy to say, after seeing my dailies on many dusk shots and scenes shot late at night, that this film is really good. In fact, I shot some color chart tests with people in them and I went so far as to underexpose three stops. I would say that, even though the shots aren't perfect, they are still usable. They look a little flat, a little gray, but you still have the exposure.

I was especially happy to find out that you can push this film, too. You can easily push one stop and gain a tremendous amount of exposure, and by losing the 85



The sequence in which Richard Dreyfuss has his first experience with a UFO hovering directly above his truck was shot at an actual (and busy) railroad crossing. Every two hours all night long trains would roar by and it was necessary to move all of the lights (mounted on forklifts) out of the way for each train, a procedure which racked up a loss of 45 minutes in production time per train.

In the hangar, a reverse low-angle shot is made aiming straight up into the blinding multi-colored light supposedly beamed from the UFO. When the exterior scenes were shot the first time at the railroad crossing, Brutes were used as the source, but proved unsatisfactory. For the reshoot, HMI units were employed with much better results, partially due to the fact that the weather was better also.





The Box Canyon set inside the hangar at Mobile was the biggest set Zsigmond had ever seen. The lamps were mounted so high on the catwalks (60 or 70 feet up) that a 10K had no measurable effect. Even a single Brute helped but little. It was necessary to beam at least three Brutes together to get any effect that could be seen. High-speed lenses (T/1.7) helped somewhat, but drastically cut the depth of field. However, it was the 4,000-watt HMI spotlights that made possible the brilliant traveling light effects across the stage area to coincide with visualizations of UFOs added by Trumbull later.

filter during night-for-night shooting, you gain at least another stop, because it seems to me that the film is extra sensitive to blue. I was surprised to find that certain shots I had given up on completely (because I didn't think there would be anything on the film) actually had to be printed down a bit. It's amazing.

I like the 5247 stock very much but, if anything, it's too good. It renders everything too real. I think that cameramen who like to photograph people with no makeup for that realistic look can easily get into trouble, because people's faces are usually redder than they think, redder than they would like to see them on the film. We are all used to the 5254 wonderful look of faces, because that film is not as sensitive to red and it was easy to get a nice natural skin tone. But with 5247 you have to be careful because the slightest red tone in the face will show, and you have to use makeup very skillfully to tone down the red.

As far as camera equipment is concerned on this location, we are using the Panaflex for almost every shot, and especially the moving shots. We have a lot of complicated follow shots and if it weren't for the Panaflex I don't think we would be able to get some of them.

#### MOBILE, ALABAMA

What we have here in Mobile is the biggest set I've ever worked on. Not only the biggest set I've ever worked on, but the biggest set I've ever seen. It's 600 feet long and 250 feet wide and the reason they decided to shoot in Alabama was that this was the only big covered place of its type available anywhere. They looked all around the world. They went to London; they went to Israel. They went everyplace looking for big hangars—looking for any kind of place that was covered. They were even considering a place in Washington state, near Seattle, where the Army or Navy

had an underground rocket storage area, or whatever, that had the required floor space. But although it was big enough in that respect, it was not high enough. It was only 60 or 65 feet high, while our sketches and designs called for a place that was at least 100 feet high. That's why they finally selected this place.

Our "stage" is so big and the catwalks are so high that if you turn on a 10K you cannot see any measurable difference on the set. If you want to make a difference in lighting you have to turn on at least a Brute, and if you want to create any sort of effect you have to combine three Brutes.

We've had lots of unusual lighting effects to do here. Some of them, of course, are going to be done by Doug Trumbull. He's going to put the machines up into the sky—the UFOs or whatever they'll call those strange objects. But we still had to create some effects for Doug, Continued on Page 98

An ultra wide angle photograph of the Box Canyon set, as technicians (in white suits) await the arrival of the expected Mother Ship in the film's final sequence. In the foreground, First Assistant Cameraman Mike Genne (left) and Operator Nick McLean observe rehearsal on TV monitor of film camera. This set cost an estimated \$700,000 to build, but the company shot on it for five weeks, fully utilizing all of its visual



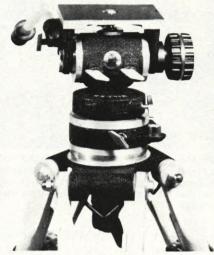
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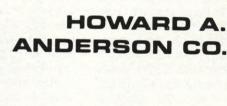


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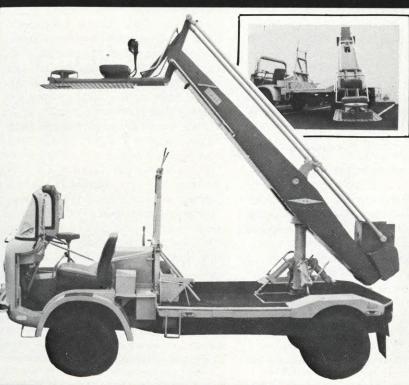
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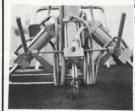
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# THE UNSUNG HEROES OR CREDIT WHERE CREDIT IS DUE

By STEVEN SPIELBERG

Writer/Director

When a new movie hits the streets. audiences applaud its heroes, both on camera and behind the scenes. The trouble a good part of the time is that the applause is either misdirected or too abundant in one place. People are left out, and many of these individuals are. indeed, the real creative powers behind what caused all the public hoopla in the first place. I can't mention everyone who had their magic fingers in "CLOSE ENCOUNTERS OF THE THIRD KIND"; that would take an entire issue of AMER-ICAN CINEMATOGRAPHER. But I can mention a few of those whose contributions were essential, but will probably be overlooked.

Joe Alves, the Production Designer, was my third partner behind Michael Phillips and Julia Phillips from the moment the script was in its blue page stage. The two of us occupied a boxcar bungalow on the sidelot of The Burbank Studios for over a year. There, we drew little pictures in charcoal, pencil and crayon of extraterrestrial concepts, UFOs and landing sites. Joe set out to scour America for a place that only my imagination told me existed. It was to be a mountain landmark. An unmistakeable X that would mark the spot of first contact. Weeks later Joe returned with a number of options, but the one place he found that I couldn't take my eyes from was the Devils Tower National Monument in the Black Hills of Wyomina.

Joe drew together a production staff from all over Hollywood. Phil Abramson, the Set Decorator, spent months researching and collecting a warehouse of scientific hardware from Rockwell, TRW and Lockheed. Dan Lomino, the Art Director, assisted Joe in all ways, creative and administrative. Bill Parks, the Construction Coordinator, ramrodded the actual construction of our base of operations set in the Mobile, Alabama, hangars, and a man Joe fought so hard to get, Dick Deats, was primarily responsible for high-rigging work, scaffolds and thousands of yards of black tarp that made our dirigible hangar look like Wyoming at night.

Another discovery of Joe's was a man who proved himself indispensable as a conduit for my vision of the project. His name is George Jensen. He was the Production Illustrator. The sheer

Special homage to the huge group of artists and artisans who dedicated their superb skills, effort and loyalty to "CE3K"

luminescence of his style was like seeing the entire movie for the first time. George sketched and painted my thoughts of the film's last forty minutes. Four months later we were drowning in production value.

From the description in the screenplay, Joe built a clay miniature of the contact zone that would go through many changes, but served an immediate function. It impressed the Board of Directors at Columbia Pictures sufficiently to give us a green light to start making the movie. Every day I brought in experts in special effects. Among them was veteran effects man Larry Butler, who as it turned out, was happier on his ranch as a retired consultant. Larry spent several weeks with me trying to sober my optimistic enthusiasm about special effects movies. Was he in line with the truth! For two years Larry Butler's words would haunt me. "There are no new problems," he once told me, "only new filmmakers!"

When I finally hired Douglas Trumbull to supervise the effects, "CE3K" was an on-again-off-again project with a ridiculous start date that left Doug very little time to get his act together. But he did it gloriously. Doug built the "CE3K" workshop in the Marina Del Rey, one block from his Future General offices and five minutes from my cutting room. It was Doug's responsibility to transform my visual designs from the storyboard to the screen and we created a lot of magic on Glencoe Avenue. I've said it before: If Trumbull hadn't accepted the job, I'd still be on the Columbia backlot trying to get a cloud to materialize from thin air. One of Doug's secrets is knowing whom to hire. He has a nose for talent and at the worst possible time of the year-when everybody was tied up in the big special effects boom of 1975-76, Doug managed to attract a small treasure chest of specialists whom he has singled out in this issue so I won't explore my admiration for each and every one of them right now.

I just want to mention one person at the "CE3K" workshop of whom I am especially proud and without whom I would have lost my head more than once. Richard Yuricich was more than simply a Special Effects Supervisor and Director of Effects Photography. He was a creative collaborator to myself and Douglas

from the very beginning and is responsible, along with so many others at the Glencoe workshop, for the kind of effects that could be scrutinized for many minutes at a time with no anxiety about matte lines, low contrast contamination or "glitches" from our moving objects.

Roy Arbogast was the man in charge of all physical effects. On a film like "JAWS," people like Robert Mattey are the stars. "JAWS" contained an abundance of mechanical effects. But "CLOSE ENCOUNTERS" is thought of as an optical effects experience. This is not entirely the case. When Drevfuss' utility truck goes berserk, roadside mailboxes and railway crossing lights vibrate and swing, this was Arbogast at work. During the siege of Jillian's farmhouse and the taking of her three-year-old son, Roy Arbogast was primarily responsible for engineering every interior effect. Roy even constructed barrel mirrors and spinning centrifuges for special lighting effects. Crew members who assisted Roy Arbogast were Mike Wood, Dave Wood, Max Wood, Russell Hessey, Kevin Pike, Tom Ryba, John Belieu, Kevin Grimsley, Johnny Borgese, LeRoy Smith, Ray Cline, Curt Dickson and Don

Earl Gilbert was Vilmos Zsigmond's gaffer. At 60 feet above the base of operations he quarterbacked a gigantic electrical crew-"the Sweathogs". It was about 130 degrees up there. They all deserved decorations. In order to give the optical effects a "live on camera" look. I wanted very strong spill light to describe the course these objects would take along roads at night and over the Devils Tower landing site. Months later the miniature saucers would key to the light puddles traveling below them. It was Zsigmond's and Gilbert's job to find lighting units strong enough to operate from 60 feet above the set and, at the same time, appear brighter than the surround-

Chuck Myers was the Assistant Director. Besides creating a backstage momentum (along with Producer Julia Phillips) that kept the company steaming forward, he designed a scenario for each and every one of the ground atmosphere people functioning in both ways scientific and civilian in our base of operations sequence. There were 150 of them and

they never stood around with their hands in their pockets. Chuck's scenario, keyed to every close encounter, provided stage moves, attitudes, the precise operation of industrial machinery—all of this choreographed like complicated plays in football. Chuck could announce a scene number and his army of technicians would shuffle their positions ready for action. Chuck was supported by Second Assistant Jim Bloom and Production Assistants Janet Healy, Pat Burns and Sally Dennison, who also filled in as our casting director for most of the background atmosphere.

Shari Rhodes scouted for talent almost a full year before the start of photography, aided by Juliette Taylor during our New York swing. Shari discovered a lot of wonderful performers. But she will be remembered above all else for finding Cary Guffey, the three-year-old starchild who might steal this movie away from all of us.

Buddy Joe Hooker, our stunt coordinator, deftly and safely orchestrated all stunts, as well as doubling everybody from Dreyfuss to the extraterrestrials.

Clark Paylow (no pun intended) was the Production Manager and Associate Producer. Clark's daily rain dances kept the weather off my case (unlike my experiences on "JAWS") and his personality kept my spirits up when it looked like we'd never finish the picture. Incidentally, Clark was also the only member of the "CE3K" company who really knew what the film would eventually cost. None of us wanted to believe him. We do now.

The Key Grip was Bobby Moore. His crew was safety conscious, thorough, and as swift as any grip outfit I have had

the pleasure of doing business with.

John Veitch, the man in charge of production for Columbia Pictures, deserves more credit than words can convey at this time. When problems arose that would cost the studio more money than perhaps they wanted to spend, John flew to our Alabama location for a first-hand look. There were never unpleasant words over a telephone or ultimatums or threats. John worked shoulder-to-shoulder with Julia Phillips and myself. His understanding of our enormous logistics made him our immediate ally and sometimes a not very popular guy with the other Columbia executives. The John Veitch story could fill sixteen chapters in anyone's "how did they do it?" book.

Gene Cantamesa was the location sound mixer. His main job was to sometimes force me to allow him to do it right. I suppose that in a director's mind, when push comes to shove, the sound track is immediately expendable. We suffer later during the final mix, with much residual anger at the production mixer for not being more demonstrative about the quality of his tracks. Well, Gene was demonstrative. Sound to him was as it should be, as important as the lighting was to Szigmond. As a result, our production sound is super. So was the mixing panel at Todd-AO, operated by Buzz Knudson, Don MacDougall, Bobby Glass, and Dolby trouble-shooter Steve Katz. They really cared about this one and it sure shows. People comment that the sound in "CE3K" is often as important to them as the story and special ef-

I only planned to mention those who I felt would not be given proper credit

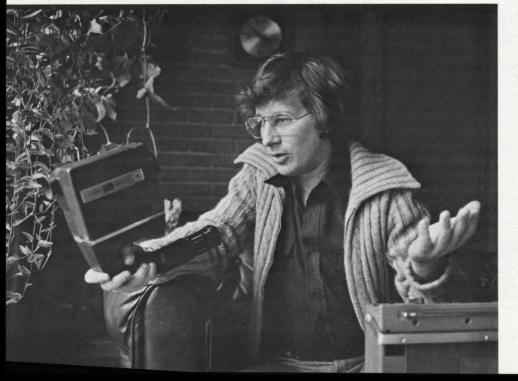
when "CE3K" opens. Vilmos Zsigmond, ASC, was one of my top collaborators all the way through principal photography. He's never let me down and I'm grateful we had the opportunity to work together twice in four years. But the names of the other D.P.'s are also on the credit list and this needs some explaining. Vilmos completed the majority of "CE3K" before the fall of '76. He moved on to other jobs which made him unavailable to me when I wrote several added sequences. Bill Fraker, ASC, photographed the majority of extra scenes, including the opening sequence in the Sonora Desert (actually El Mirage Dry Lake in the Mojave Desert), the Goldstone radio telescope bunker and receiving module, the secret warehouse and loading platforms, the solo extraterrestrial that had been originally created and engineered by Carlo Rambaldi, and various inserts and production pickup shots over a period of two

John Alonzo, ASC, must think I'm crazy. I called him more often than anyone. John was like a photographic mop-up operation. He shot so many bits and pieces my mind reels. His niftiest contribution was the last half of the police car chase through the Ohio tollgate and guard rail disaster. But John photographed a great number of dramatic inserts for me. Many moments during the siege of Jill's farmhouse are an Alonzo operation. So is the arrival of the men in red jumpsuits, at the truck loading docks.

Laszlo Kovacs, ASC, also worked the farmhouse sequence, giving me extra moments with Melinda Dillon and Cary Guffey as they react to John Alonzo's insert of the screws unwinding within Vilmos Zsigmond's master angle of the dining room. Incidentally, Frank Stanley, ASC, did two days' work with me on a sound stage shooting Richard Dreyfuss thirty-two pounds thinner than he was a year before. Frank's only order from me was, "Make him look fatter or he won't match." Frank took two lights and put the weight back on him. I was amazed. Dreyfuss felt rotten. Finally, Douglas Slocombe, BSC, photographed the Bombay, India locations in January '77.

The man I relied on the most for emotional, moral and creative inspiration was Michael Kahn, who edited "CE3K". If a director ever had a right-hand-man, Michael was it. We were like frat brothers living under the same roof along with my tireless assistant, Richard Fields. I probably learned more about the fine art of film editing from Michael than anyone else. We had a rough cut only two weeks after finishing principal photography in Mobile, Alabama. Michael's early sensitivity to the screenplay and my vision of

The closest Steven Spielberg aspires to becoming an "auteur": He shoots a film of himself with a Super-8 sound camera. "There is no such thing as an *auteur*," says he. "Without all these people movies simply are not made." Eschewing arty pretensions completely, he seeks only to involve, excite and entertain motion picture audiences.



the ending made him the best kind of partner when discussing new approaches to the old material. Michael kept pounding away at me, cautioning me not to be harsh with the original version of my script just because I was so used to it. He maintained my perspective and made old ideas seem new again.

From hours of dailies and partial assemblies, Michael strung together the last ten minutes of the film on the Moviola with no input from me whatsoever. It was like seeing the film for the first time. And without a single optical effect the ending was just as effective. His enthusiasm for this project bordered on the ridiculous and occasionally it dwarfed my own. I often came to the cutting room with a case of the guilts—especially if I had gone away for the weekend when Michael worked it.

Michael's biggest thrill as a film editor is trying something new. On his own, he'd recut a scene twenty times if it meant discovering something fresh—an extra laugh, three more seconds of tension, a better reading. Michael is irrepressible. He had two pretty terrific assistants. Geoffrey Rowland is a full editor now, but assisted Michael the first year, both on location and right through to the second cut. Charlie Bornstein relieved Geoff when Geoff was offered his first

feature film. Charlie was maniacally dedicated to "CE3K" and more than once stood nightly vigil over the negative when it was away from the MGM vaults.

Sam Gordon was our Property Master. Among his other skills, he made the best potato pancakes and cold borscht outside of New York's Russian Tea Room. Jackie Ackerman collected and distributed props for every one of my added scenes months later. There was never an item I wanted that either Sammy Gordon or Jackie couldn't get their hands on.

Charlsie Bryant's script notes read like Russian literature. She never left anything out. Instead of publishing the "JAWS" log, Dell should have published Charlsie's lined script pages. They were even funnier.

Frank Warner was charged with the collection and production of all sound effects for the picture. He came on board very early and his dedication to the film is unparalled in my experience. If you let Frank loose in a junk yard he will get the fender of a '57 Chevy, a piece of chainlink, an old combat boot, and a deflated rubber wading pool to sound like whatever you want it to. I think Frank's work on the sounds for the Mother Ship arrival is nothing short of phenomenal, even though Frank will pride himself more on creating a never-before-heard solar wind

or a simple door closing, or the squeak of someone's shoe in the distance. Frank's team was terrific: Dick Oswald, Sam Gemette, David Horton, Gary S. Gerlich, Neal Burrow, and Chet Slomka.

Jack Schrader was the Supervising Dialogue Editor who could somehow make the word "Hello" fit into the mouth of an actor saying "Goodbye". Dick Friedman also worked his buns off trying to make dialogue fit where no dialogue was supposed to go. Kenneth "Wammbie" Wannberg cut the music and John Williams will be the first to say that he is the best music editor in the business. Much of the picture continued to expand and contract even after John Williams completed his musical score. John, Wammbie, and myself worked nights and weekends reworking musical cues to fit the ever-changing sequences.

The man in charge of Video Playback was "Fast" Eddie Mahler. But he could also fix a 70mm Panavision camera or get your car to start in the morning. "Fast" did just about everything as our own Mr. Fixit for the four months we spent in Wyoming and Alabama.

Jim Linn was in charge of wardrobe. His Mobile wardrobe department was the size of a major studio facility. And Jim Linn and Vickie Sanchez were forever Continued on Page 88

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### CREATING THE PHOTOGRAPHIC SPECIAL EFFECTS FOR

# **CLOSE ENCOUNTERS**

#### OF THE THIRD KIND

By DOUGLAS TRUMBULL

Visual Effects Supervisor

When Steven Spielberg wrote "CLOSE ENCOUNTERS OF THE THIRD KIND", or CE3K as we all came to know it, he had a very clear vision of what he wanted to see. When I was asked to contribute my talents as head of photographic effects, my first reaction was to say "no"-because I'd lost my patience for working with directors who think they can just buy their special effects after the main unit has wrapped. But Steven was already working closely with artist George Jensen and production designer Joe Alves trying to pre-visualize every shot, every detail, months prior to commencement of principal photography. What a relief. The timing was right for me, too, because Steven agreed that we should shoot all the effects in 70mm and I needed an excuse to set up a complete 70mm facility for a project of my own. More about that some other time.

We quickly negotiated a deal for my company, Future General Corporation, to subcontract the entire photographic effects job and set up a special facility which would include workshops, photographic areas, optical printing facilities, animation stand, matte stand, hi-contrast

film development, and all related film handling and editorial facilities. We located near my offices at Marina Del Rey, which provided clean air and fast access to the M.G.M. lab. In post-production Steven also located his editing room

nearby in the Marina. We began with one basic conceptwhatever the UFOs would ultimately look like, they would be brilliantly illuminated and would greatly influence the lighting of people and places in which they appeared. We immediately began conferences and tests with Director of Photography Vilmos Zsigmond, physical effects man Roy Arbogast, and finally with gaffer Earl Gilbert. Our plan was that even though the UFOs wouldn't be shot until post-production, any live action scene in which they appeared had to include the apparent illumination created by them, complete with flared-out overexposure, shifting shadows, and correct color. Detailed storyboards helped us keep track, and we shot the live action while "flying" various lights overhead via cranesupported steel baskets, rolling platforms, and finally, on the "big set", via a complex overhead monorail system

hung from the superstructure of our airplane hanger in Mobile, Alabama. We used arcs, HMI focused spots, and special highly focused Navy signal lights—arcs rigged with electrically operable radial shutters. Various glass and plastic mirrors also helped create unusual light effects.

Young special effects wizard sets up a complete magic factory and outdoes even his own "2001" achievement by creating what are probably

the most believable and sophisticated visual effects ever put on film

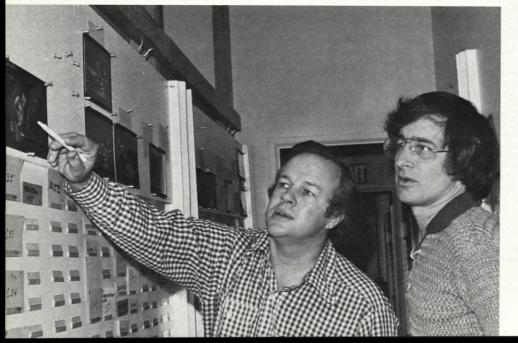
Although many effects shots were locked-off, using a heavy steel pipe frame for absolute steadiness, another of our goals was to allow total camera freedom to pan, tilt, dolly, and pull focus during complex effects shots. Not an easy task. However, with knowledge of the Magicam® system which I invented, I realized that with the right application of electronic servo system technology and data recording techniques, it should be possible to build a system which could accurately record all the cameraman's moves and store the information for later playback so that matching miniature effects could be shot and opticalled with the original live action—in perfect sync. Jerry Jeffress and Al Miller of Interface Systems had already built for me a system we called "mini-scan", which electronically controlled four pulse motors simultaneously.

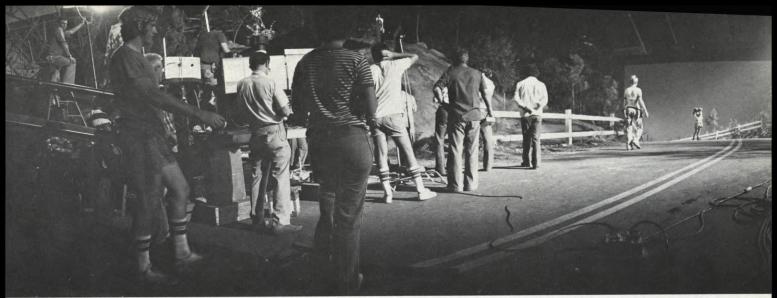
I commissioned Jerry and Al to build a system similar to what they built for "STAR WARS" (which jokingly became known as the Dykstraflex\*), but with the addition of cassette tape data storage so that we could film extensive takes which ran in excess of two minutes. The Dykstraflex was limited to about 30 seconds of solid core memory storage. Anyhow, with the help of my father, Don Trumbull, who designed and built all the necessary mechanical modifications to the camera and head, we came up with what we called the "motion tracking system".

The system, which I'll call the MTS, could handle eight channels of data which could include pan, tilt, dolly track

The Dykstraflex was named to combat the formidable Trumbullflex which was an old Eyemo in a new box. The name inspiration for me came originally from the famous Freddieflex, a camera consisting of a Coke bottle lens on a beer can, invented by Fred Yates, of Gordon Enterprises.

Visual Effects Supervisor Douglas Trumbull and Writer/Director Steven Spielberg check some of the hundreds of storyboard sketches prepared for "CE3" far in advance of shooting. These sketches were invaluable in making sure that live action photography and special effects shot in post-production would precisely match and mate.





The script called for several scenes to be shot on a hill called "Crescendo Summit", where several UFO sightings would occur. This set, with its considerable expanse of curved roadway, was built inside a hangar in Mobile, Ala., and backed up with a 100 feet-by-38 feet portable front projection screen, the largest movable process screen ever built. (BELOW LEFT) The totally new front projection rig built by Trumbull for this operation stands on the set, with Photographic Effects Director of Photography Richard Yuricich nearby. (RIGHT) The "Crescendo Summit" sequence included several police cars pursuing the UFOs.

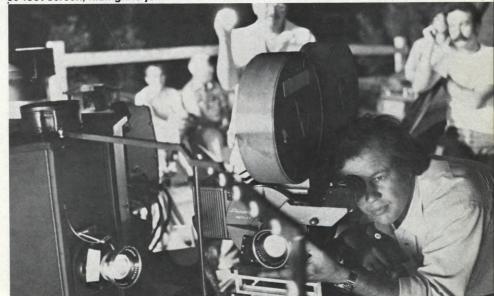




motion, focus, camera sync, plus other motions as might be used to control the movement of a UFO—recordings which we could add later.

The camera included a unique focusing system which was servo-controlled so that the assistant could pull focus with a remote control device in order not to jiggle the camera during a take. The camera head included both pan and tilt drive motors, coupled directly to optical encoders. This facilitated an exact recording of the operator's moves, and was so accurate in fact that on playing back the tapes into an electronic graph plotter we could see operator Nick McLean's heartbeat.

Dolly tracks were specially built with hardened steel shafts and Thompson ball-bearing rollers, plus levelling screws, and were levelled and adjusted Especially for this production, Trumbull built a totally new 8" x 10" from projection rig with 65mm Panavision camera, and a special mount was constructed so that the entire rig would fit onto a Chapman Titan crane. The 100-foot-wide front projection screen was still not wide enough for some of the effects planned, so Trumbull extended it with an extra 30-foot screen, hiding the joint with a tree trunk.





The Special Effects for "CLOSE ENCOUNTERS" involved many miniatures, including an entire Indiana countryside with hundreds of houses and street lights that could be illuminated. A key miniature was this model of Devils Tower National Monument, shown here getting a few final touches.

Dolly tracks were specially built with hardened steel shafts and Thompson ball-bearing rollers, plus levelling screws, and were levelled and adjusted for each shot with a surveyor's transit to assure an absolutely straight and smooth move. Here the camera is readied to move in on a model helicopter.



for each shot with a surveyor's transit to assure an absolutely straight and smooth move.

During the course of live-action shooting, many successful recordings were made and safety duplicates recorded. Then began the long job of creating the effects to be combined with these shots—the first extensive use of such a technique.

In a desperate attempt to keep over two hundred complex shots organized, we set up a system of "control boards". These were movable 4 feet by 8 feet panels which could be hung on the wall or moved around as needed. At the top of each board was an area to pin up any and all visual material related to each shot. from original storyboard sketch to full color frame clip blow-ups of optical elements. Below each visual was a series of slots to clip 3" by 5" and 11/2" by 5" color coded cards. Each color represented a particular process, i.e., UFOs, stars, matte painting, MTS, etc. Each panel could handle about eight shots and we had about twenty-five panels lining the walls of our production offices. In this way everyone working on the project could refer at any time to the status of any shot, thereby keeping everybody totally organized. A gallant attempt and it looked terrific, but chaos ruled as always.

The CE3K effects include about one hundred matte painting shots and we were extremely fortunate to have Matthew Yuricich to handle this very important and difficult part of the project. Working closely with Matt we set up a matte photography facility which consisted of a 65mm bi-pack camera and two frames about 3 feet by 6 feet, with mountings for either Masonite boards or glass mattes. These frames were equipped with independently switched lighting and cooling systems, as well as motorized north-south, and east-west movements. A unique back-lighting system was also built which allowed for accurate placement of various lamps behind mattes to create brilliantly flared lights, such as the stadium lights on the "big set." The camera was rigidly locked-off on a steel support anchored in concrete, and was equipped with a projector lamp so that frame clips could be projected onto the boards to be traced off. We decided that to achieve the best possible quality, Matt would utilize his unique talents to paint for the 5253 dupe negative stock. In this way our final negative could include the matte painting as original.

The matte stand for CE3K was operated by Don Jarel and this operation provided the accuracy of registration and predictability of results needed to successfully shoot Matt Yuricich's paint-







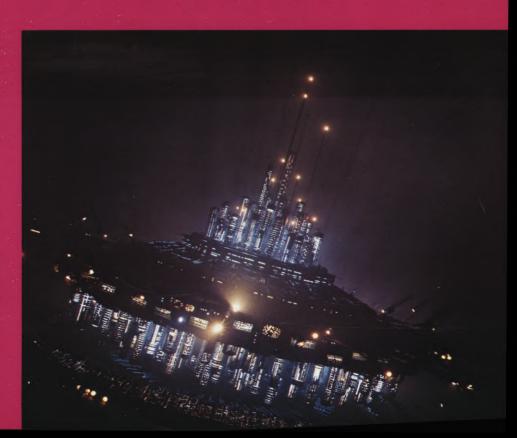






(ABOVE) What do UFOs look like? Based on the thousands of actual sightings that have been made, the UFOs that are shown in "CE3K" appear in a wide array of shapes, sizes and light configurations — including a feisty little red sports model that goes streaking through in a frantic attempt to keep up with the big ones.

(RIGHT) The "Big Mama" of all UFOs in the picture is the majestic Mother Ship — part oil refinery at night, part city-in-the-sky, part spectacular Christmas tree ornament. The intricate model was designed with thousands of individually drilled holes lit by neon, plus many tiny incandescent bulbs strategically placed.





(ABOVE AND BELOW) Side and front views of the intricate tank arrangement constructed for the creation of miniature rolling clouds in a liquid environment. It included a seven-foot-square glass tank about four feet deep, equipped with complex plumbing, heating and filtering, plus two large eight-foot-deep redwood storage tanks to hold filtered and heated water.



ings onto the dupe stock. Since Matt's paintings had to be painted for this stock, i.e., low contrast with off-colors, it was a delicate task for Matt to guess at colors and rough-in a painting, test it, see the results, modify the painting, test it, see the results, etc., etc., many times before the final painting was achieved.

Ordinarily, matte paintings are optically combined with other photographed elements using positive and negative mattes in the printer. In CE3K, however, we could not tolerate the hard edges and associated matching problems, so we worked out a way of painting out all non-matte areas with a super-black glossy paint, often softly feathering the edges of the painting, and then exposing the entire board onto the negative without any matte or mask. This allowed us to "tickle" edges, add highlights, etc., as needed until no "matte lines" were evident. Since the matte paintings were exposed onto a negative that also had to have various exposures from other sources such as the optical printer or animation stand, extensive "dip tests" were performed prior to final exposure to ensure that all elements lined up properly.

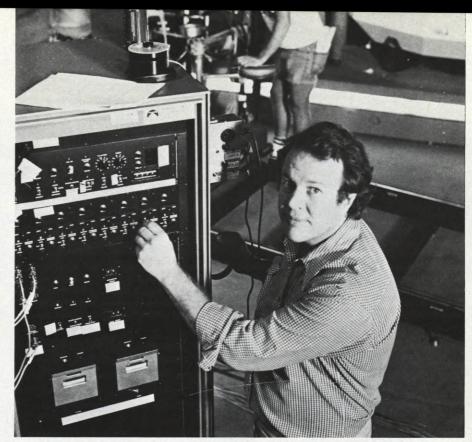
Our optical department, headed by Bob Hall, had to face the difficult task of combining multiple elements onto a single negative without "contaminating" the black or dark areas. Working with scenes in a night environment merit that even the slightest spurious exposure in sky or shadow areas would destroy the rich blacks we needed. Since we had many shots in which three or more interpositives were to be exposed onto a single dupe negative, we had to use various density cover mattes quite often. In order to maintain exact control of our matte densities, and so as not to interfere with M.G.M. Lab's regular color negative bath, we decided to install our own 65mm hi-contrast black and white processor.

Our most difficult overall matting problem was that the UFOs were not hard edged, but included soft, glowing luminosities and lens flares of various colors and densities. During our motion controlled photography of the illuminated miniatures, at which time we would shoot an exactly matching negative of each UFO as a simple silhouette so we could generate hi-con mattes, we also needed a matte density that was inversely proportional to the brightness of the surrounding glow areas. So, in addition to the hi-con matte, we also generated a soft edged matte from registered color print of the UFO original. Combining this with the solid silhouette matte provided a final matte which not only blocked out the solid body of the UFO, but the glow and flare areas as well. Obviously, this became a very complex compositing job in scenes where multiple UFOs passed in front of or behind one another. Each shot was different, and matte densities were tested and individually adjusted for each shot.

In many cases we augmented mattes with rotoscoped and painted-on-film mattes (sometimes known as "garbage" mattes) to remove various support columns and unwanted images. And, of course, we used many more standard glass silhouette mattes on the matte stand when we needed to print two or more interpositives onto one negative with hard edges-although we had the choice of throwing a foreground matte slightly out of focus by focusing on the rear plane of the matte stand. The old technique of painting an opaque white silhouette on the foreground glass allowed us to light it, with black behind, or light a white board behind using the opaqued glass as a black silhouette, thus providing positive and negative printing functions with one glass matte. Often we wished to softly darken various areas to avoid contamination, and in these cases we would airbrush dark areas on the white background printing board. In the optical printer we often used the now famous "Jarel Device," which Don Jarel perfected. This consisted of a variable shaped template ordinarily used by carpenters to check the shape of a wooden moulding-it fit perfectly inside our Research Products optical printer for softly masking out areas, again to reduce contamination in dark areas.

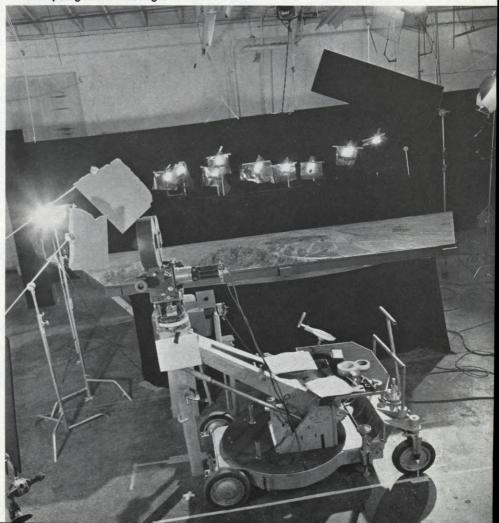
Shots with various elements exposed on either the optical printer or the matte stand were then forwarded to the animation department headed by Bob Swarthe for added stars and other animation effects. Especially for CE3K we built a new Oxberry stand equipped with an oversize backlight area, special 360 degree rotation, incandescent and fluorescent backlights, and polarized quartz top lights. We designed our own 24 field charts, which included markings for both standard 70mm as well as 35mm anamorphic cut-off. These charts corresponded with special ground glass markings in all of our animation, optical, miniature, and MTS cameras.

Our greatest problem in adding animation effects, such as stars, light flares, etc., was that these exposures had to go directly onto the dupe negative coming from optical. Extremely long exposures and tricky color filtration was required to put an image onto this relatively insensitive film stock. The modified Todd-AO camera on the Oxberry also included a special rack-over type frame clip projector for precise line up. as well as bipack capability. Bi-pack mattes were



Electronics and computers were indispensable to the filming of the effects. The sophisticated MTS system for motion tracking, with cassette tape data storage, could handle eight channels of data, which could include pan, tilt, dolly track motion, focus, camera sync, plus other motions as might be used to control the movement of a UFO.

Many terrain miniatures were built to represent the Indiana and Wyoming countryside. These miniatures were shot both in 65mm and 8" x 10" Ektachrome for front projection plate use. Here one of the terrain miniatures is shown ready to be photographed, with multiple small diffused spotlights illuminating it.





The largest miniature was the Mother Ship, and its construction was supervised by Greg Jein. The design was a collaborative effort between Spielberg, Trumbull, Jein and Production Illustrator Ralph McQuarry, who produced a number of beautiful color renderings of various design ideas. Its symmetrically circular shape included many tubular "buildings" and complex illumination.



Tricky high-voltage power supplies were needed to drive the hundreds of tiny neon tubes that were mounted throughout the Mother Ship. When photographed in a special smoke environment, the totally-illuminated spaceship appeared to be virtually a "city of light". As the centerpiece of the final forty fascinating minutes of the picture, it overpowers everything previously shown.

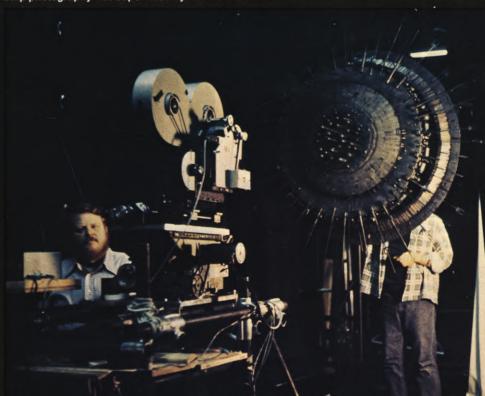
provided by the optical department for each shot—and any mistake in sync, frame line, exposure, movement, or color would precipitate a total re-shoot to generate a new optical negative.

As you can see, we went to great effort to include matte paintings, stars, and animation effects as original exposures whenever possible in order to insure the highest possible quality. Animation camerawork by Alan Harding and Max Morgan was superb—and extremely difficult.

For extensive rotoscope mattes we didn't want to tie up the Oxberry, so we built a 65mm roto stand using another Todd-AO camera equipped with projector lamp and animation motor. We also built a special slitter to trim 70mm color prints to 65mm for use in this rig. Also, at one time we were so backed up with shots that needed stars added, using long exposures of sometimes a minute or so per frame, we built another locked-off animation stand out of steel pipe and it became known as the pipe-berry.

The UFOs were built to about 1/20th scale out of vacuum-formed styrene and ABS plastic, as well as flat plexiglass,

Long exposures of sometimes 90 seconds per frame were needed to capture the image, while stopped down to f/22 for required depth of field on the Mother Ship miniature. Trumbull's mini-scan system was used to interlock the model's rotation, camera dolly move and frame rate, so that identical silhouette mattes could be shot in exact registration. Mother Ship photography was supervised by Dennis Muren.





In order to create a soft, glowing, flared and indistinct look for the UFOs, it was necessary to photograph them in a precisely controlled smoke density. The "smoke room" was equipped with a totally blacked out interior and special fans and ducts to circulate smoke generated by an electronically activated Mole-Fog machine. By using infra-red sensors in the room, smoke density could be tested accurately and automatically. (RIGHT) The matte photography facility which was set up included the 65mm bi-pack camera shown here.



(BELOW LEFT) Academy Award-winning matte painting expert Matthew Yuricich was in charge of creating the approximately 100 matte paintings used in the picture. His equipment included two 3-x-6-foot frames with mountings for either masonite boards or glass mattes, and they were equipped with independently switched lighting and cooling systems. (RIGHT) Technician installs tiny neon lights in base of Mother Ship miniature.





(BELOW) Terrain miniatures like this were built by first drawing what the camera wanted to see, then projecting a slide of the drawing onto a flat work surface and tracing off all the major features onto the exact area. The miniature would be built in forced perspective. (RIGHT) Camera rig used to film terrain miniatures.

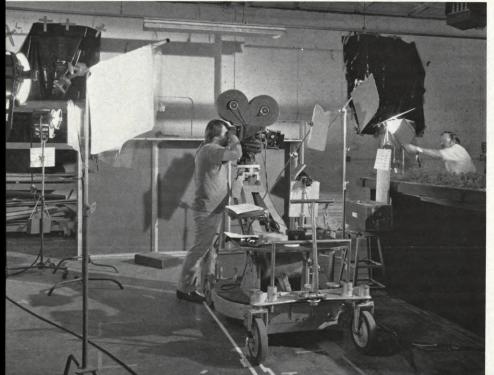






The close collaboration between Spielberg and Trumbull began many months before a camera turned. Doug found this refreshing after having worked with many directors who "think they can just buy their special effects after the main unit has wrapped." In this case, such an approach would have been impossible, since principal photography had to be precisely geared to the final special effects.

Trumbull's company, Future General Corporation, subcontracted the entire photographic effects job for "CE3K" and set up a special facility that included workshops, photographic areas, optical printing facilities, animation stands, matte stands, high-contrast film development and all related film handling and editorial facilities.



aluminum, and wood. Various lights, such as neon, grain-of-wheat, and other incandescent bulbs provided basic illumination. Special lighting units which we called post-scanners were built which consisted of a quartz lamp and motorized color filtration disc with blower cooling, feeding light into a fiber optic bundle. This fiber optic ran from a remote location behind the UFO into the postscanner unit, which was a long thin probe rigged with servo-controlled prisms at its tip that allowed us to remotely control beams of light aimed out through openings in the UFOs-or sometimes these sources of light were outboard and seemingly coming from an invisible point near the UFO. A remote control console allowed cameraman Dave Stewart to precisely control the intensity, color, and direction of multiple post-scanners simultaneously via joystick controls. At times these controls were electronically linked into the motion tracking system for repeatable and programmable motion.

Another device aboard the UFOs was the edge scanner, which was another fiber optic unit that orbited 360 degrees around the edge of many circular objects. By rotating and modulating this light source during each frame of exposure a ring of light around the UFO was formed. This technique was expanded upon later for the Mother Ship underbelly effects.

The magic key to our design for the UFOs was our intent to create a soft, glowing, flared, and indistinct look. To achieve this, all UFOs and the Mother Ship were photographed in a precisely controlled smoke density. This smoke created the same effect in miniature as normally contaminated air does at full scale. In order to actually see and photograph beams of light and airflow using a 1/20th scale miniature, our air had to be about 20 times dirtier than ordinary air. Our "smoke room" was equipped with a totally blacked out interior and special fans and ducts to circulate smoke generated by an electronically activated Mole-Fog machine. By using infra-red sensors in the room we could accurately and automatically test for smokedensity, thus controlling the smoke machine for hours at a time while slow, multiple exposures were shot using the motion tracking system. Dave Stewart and his crew operated from a sealed and air conditioned booth, but all too often had to venture into the smoky darkness equipped with a gasmask, flashlight, and walkie-talkie.

One of our most complex tasks was the creation of clouds which had to appear magically out of a clear night sky, and this was one of the first problems we tackled. I had an idea that realistic miniature clouds could be created in a liquid environment — into which would be injected some other milky white liquid. A young filmmaker, Scott Squires, had just joined Future General to help with our research and development projects and I turned the project over to him. Scott put together a test bench of fish tanks and numerous chemicals ranging from all kinds of paint to liquid antacid to vanilla malts — trying to find the right combination of liquids that could be injected into water to form believable clouds.

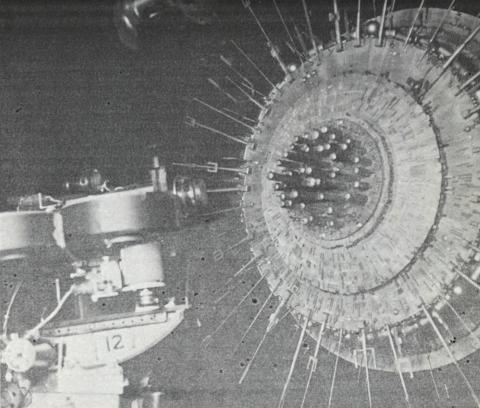
Scott finally came up with a special mixture formula of white poster paints whipped up in an electric blender that looked just right. Bob Shepherd built a seven-foot-square glass tank about four feet deep equipped with complex plumbing, heating, and filtering, plus two large eight-foot-deep redwood storage tanks to hold filtered and heated water. Large valves were included so that we could dump and fill the glass tank as quickly as possible.

Above the tank we rigged a mechanical remote manipulator from Central Research Laboratories, Inc. equipped with a long thin black tube for injecting the paint mixture into the tank. This tube supplied the paint via a pressurized paint tank (an old pressure cooker) and an electrically activated valve.

The other end of the manipulator was outside the tank and behind the camera-this allowed me to pull a trigger to open the paint valve and "paint" the clouds at any location within the tank while the camera rolled at high speeds of from 48 to 72 frames per second. Over head lights were rigged to give an overall moonlight effect, and special "probes" of fiber optic bundles inside metal tubes were rigged on a miniature overhead rail system (out of the water) so that they stuck down into the water at the same level as the "clouds". Often the lighting effects from the probes and other heat lightning flashes were shot on a separate negative at slow speeds of about six frames per second and then optically double exposed into turbulent clouds shot at high speed. Since each "take" required a totally fresh and clean tank of specially heated (or cooled) and filtered water, this shooting was slow and difficult and occurred on and off for over a year to achieve the results we wanted. Scott Squire's dedication to this (and many other) tricky projects was invaluable.

Our largest miniature, of course, was the "Mother Ship," and its construction was supervised by Greg Jein, who headed our miniature department. The design was a collaborative effort between Steve Spielberg, myself, Greg Jein, and Ralph McQuarry, who produced a number of beautiful color ren-





The creation of effects for "CE3K" was a study in contrasts. (ABOVE) Filming of the large Mother Ship model, which had to have the appearance of a giant spaceship more than a mile in diameter on the screen. (BELOW) A two-story house only slightly taller than a dime, one of thousands created to populate a terrain miniature. In tribute to "STAR WARS", Trumbull included a tiny "R2D2" miniature the size of a pencil eraser.



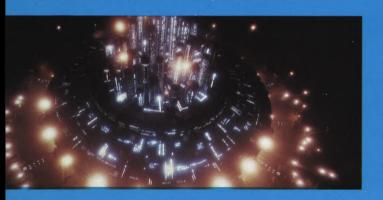


The Mother Ship makes its first appearance in the final sequence of "CLOSE ENCOUNTERS" as a kind of giant Christmas tree ornament with Devils Tower silhouetted against it and the secret Box Canyon landing area in the foreground. In terms of earthling orientation, it appears to be flying upside down, with its tallest towers pointed toward the ground.

In the sequence of frame blowups shown below, the Mother Ship slowly turns over in the sky before gently descending to touch down in the Box Canyon. In the final frame, the image of the miniature has been skillfully "mated" by optical means to the full-scale black hatchway actually photographed on the huge set inside the Mobile hangar.













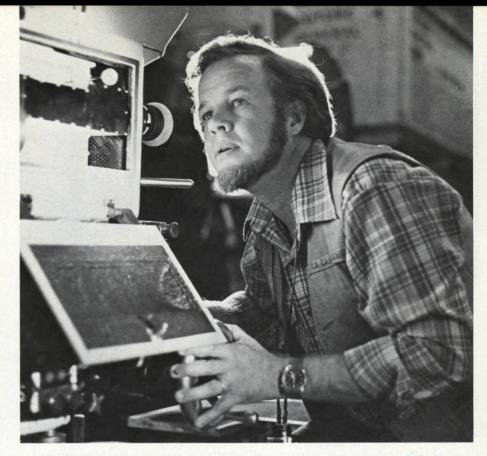
derings of various designs. Steve wanted a look something like an oil refinery at night and I liked the idea of a city of lights, so we combined these elements into a symmetrically circular shape which would include many tubular "buildings" and complex illumination. Project manager Bob Shepherd organized many of the techniques and electrical systems, working closely with Larry Albright, a fine artist who often works in neon. We were extremely lucky to get Larry to help us with the hundreds of tiny neon tubes which are mounted throughout the "Mother Ship," and oversee the tricky high-voltage power supplies needed to drive the neon. Fundamentally, the entire ship was designed with thousands of individually drilled holes lit by neon, plus many tiny incandescent bulbs strategically placed so that when photographed in our smoke environment, it would appear to be virtually a "city of light" and totally self-illuminated.

Long exposures of sometimes 90 seconds per frame were needed to capture the image while stopped-down to f/22 for required depth-of-field. Our mini-scan system was used to interlock the "Mother Ship" rotation, camera dolly move, and frame rate, so that identical silhouette mattes could be shot in exact registration. By removing the smoke, turning off the lights inside the model and hanging a flat-lit white flat behind the model, a perfectly detailed silhouette matte could be shot. MotherShip photography was supervised by Dennis Muren through many weeks of long days, long nights with endless patience and attention to detail.

Greg Jein also supervised the construction of many terrain miniatures which represented the Indiana and Wyoming countryside. These miniatures were built by first drawing what we wanted to see, then projecting a slide of the drawing onto a flat work surface and tracing off all the major features, such as hills, roads, fields, etc., onto the exact area that the miniature would be built in forced perspective. When a miniature was finished we would light it as needed and then shoot it from exactly where the projector had been, thus exactly recreating the view as originally drawn. These miniatures were shot both in 65mm, as well as 8" x 10" Ektachrome for use as front projection plates during live action.

Often the 8" x 10" plates went through an intermediate step to a large color blow-up upon which airbrush artist Cy DidJurgis would add horizon haze, stars, and distant lights. This retouched photo was then shot on 8" x 10" Ektachrome for plate use.

Continued on Page 96



(ABOUT THE AUTHOR: DOUGLAS TRUMBULL, Visual Effects Coordinator of "CLOSE ENCOUNTERS OF THE THIRD KIND", is called "the next Walt Disney" by the film's director, Steven Spielberg.

The magic he brought to the screen by his special photographic effects for Stanley Kubrick's "2001: A SPACE ODYSSEY" expanded the art to new dimensions. Now, his work for "CLOSE ENCOUNTERS OF THE THIRD KIND" goes far beyond the challenge of "2001."

Trumbull was Spielberg's only choice for the job, but he was hesitant to ask him. Following Kubrick's film, Trumbull himself had directed a space drama, "SILENT RUNNING", and may have turned away from designing special photographic effects for others. However, the concept of "CLOSE ENCOUNTERS" stimulated his immediate enthusiasm.

"I had been interested myself in doing a UFO film, and Steven's story struck a chord with me. The idea of creating UFOs with what we have at our disposal, and making them seem absolutely real—that was challenging and appealing."

Trumbull has been something of a space specialist himself, having done backgrounds for animated films made for NASA and the Apollo 17 program. One of his short subjects, "TO THE MOON AND BEYOND", was produced for the 1964 World's Fair and led to his assignment for "2001".

He next created the special effects for "THE ANDROMEDA STRAIN" and then undertook "SILENT RUNNING".

For the demands of "CLOSE ENCOUNTERS", Trumbull and his company, Future General, took over an entire 13,500-square-foot building, converting it into a complete movie studio. Installed were rooms for developing, optical printing, and editing; elaborate filming "stages" with dolly tracks running horizontally and vertically with electronically operated control booths; wood shop, metal shop, paint shop, and another for constructing miniature sets. There also were areas for maintaining the intricate cameras and lights and for carrying on the never-ending experiments with the new techniques and equipment involved.

One of the advancements contributing to "CLOSE ENCOUNTERS" is the "motion control system". Trumbull describes it as "a digital, electronic camera control system allowing us to automatically control all functions of the camera, including pan, tilt, and dolly movement."

Another major contributor was the capability of motor-driven, travelling matte shots which added to the illusion of reality. Reality is a key word for "CLOSE ENCOUNTERS" because the story is set here and now.

The new techniques also allowed Trumbull to composite extensive multiple exposures onto a single film, once again adding to the visualization of reality.

These advancements, combined with computer technology which can store and recover precise shots, are among the significant factors enabling Spielberg, Julia Phillips, Michael Phillips, and Douglas Trumbull to bring their vision to the screen.

A native of Los Angeles, Trumbull attended Morningside High School in Inglewood and El Camino College. He has come a long way since beginning as a free-lance technical illustrator.

Future General Corporation was formed in 1973 and is considered one of the world's leading developers of new motion picture processes and entertainment concepts. The company (Trumbull is vice-president) is located in Marina del Rey. Among its development projects is a new audio-visual ride system for amusement parks and Showscan, a revolutionary process for movies to be shown on a mammoth screen larger than any utilized to date.

Summing up his art—and "CLOSE ENCOUNTERS" will demonstrate it uniquely—he says: "I consider photographic visual effects one of the least appreciated art forms in the world. It takes tremendous understanding of design and illustration, of color, lighting, photography, action, movement, and drama.

"It's so mind-blowingly complicated that almost nobody understands it.")



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# PRODUCTION DESIGN Continued from Page 62

front projection screen ever built. They will be seeing a sky full of stars and a valley with the ambience of city lights and cars driving by at 50 miles an hour. It will look like a whole sequence that was shot outside-except that we know, in the film business, that you can't actually photograph stars and you can't get a valley ambience like that, because if you shoot night-for-night you won't see anything that you can't light. On the other hand, if you shoot day-for-night it looks phoney. It just looks like filtered day. They probably won't be aware of that and so a lot of those very expensive visual and photographic effects will go unnoticed. When the characters go to the Devils Tower. the audience won't realize that we built half of it here in a hangar, and they won't be aware of the complexity of shooting on location, with all of the logistics involved-because it will still be a very simple story. Even when the characters go over the top of the mountain and see the huge Box Canyon set down below, it will look like it was shot outside nightfor-night. The illusion is incredible and Vilmos did a great job on it.

I think it will only be during the last 40 minutes, when Trumbull lays on those phenomenal effects, that the audience will realize that they are viewing a vast spectacle. It's not going to be a "2001" which dazzles you immediately, because that's not the kind of picture we are making. Steven doesn't make that kind of picture. In "JAWS", for example, there was this massive crane-like structure that moved on a huge platform which we had to submerge, but all the audience saw was the head of a shark. It was like an iceberg, with only a fraction of its bulk showing. This picture, too, is like an iceberg. The audience will see the peaks, but the incredible base of study and problems that seem insurmountable at times won't be visible.

There's a lot of hard work to a large set. You draw it and you build it, but the greatest challenge is in the initial concept, when you ask yourself: "How are we going to build it? Where are we going to build it? What has to be special visual effects? What has to be mechanical effects?"

We have light effects that we fly that are real, and then we have those that are animation. We have to determine how each should be done. Then there are the big physical problems, like those relating to the tarp. You can say: "Okay, I'll build a tarp 200 feet long and 300 feet wide and eight stories high." But you're not sure if it can be done. You commit to the hang-

ars. You commit to shooting in this location. Then you address yourself to the problem and sort of work backwards. In this business you can't make studies for years, like Lockheed would, to make sure it's possible. You sort of jump in and go, and sometimes it works and sometimes you get disaster.

We've been fortunate; we haven't gotten disaster. The costs have been tremendous, but they've been legitimate costs. There hasn't been any waste. One of the worst things that can happen to a production designer is to go through all the aggravation of designing something and building it, meticulously detailing it and painting it just right, only to have the director then totally ignore it. There are directors who do that, because it gives them a great sense of power to shoot in the other direction. But Steven doesn't do that. He shoots everything you give him. Maybe later, when it's on the editing table, he'll have to take a long hard look at it and cut it out for the good of the picture, but at least he gives you the shot up front, as he has on our Box Canyon set. He's covered it well.

I think "CLOSE ENCOUNTERS" is going to be beautiful. The cinematography and visual effects are going to be just incredible. The dailies are like none I have ever seen, I must say. And I hope for Columbia's sake that it will be very successful, because they have been fantastic. I know it must be frightening to invest this kind of money, but I feel that they have a great deal of confidence in the project and in Steven-and we are going to try to give them a good picture.

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Arrangements as to availability and other details are to be made directly with the individual A.S.C. member. For further information, contact: American Society of Cinema-tographers, P.O. Box 2230, Hollywood, California 90028. Telephone: (213) 876-5080.

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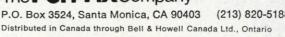
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Continued from Page 53 astrophysicists), at first he was not a be-

BEHIND THE SCENES

Dr. Hynek states that his initial doubts began to disappear when he learned the phenomenon was global, not limited to the U.S. The facts that reports from distant countries were almost identical to those here, as to what they described. and the reputable sources of many reports-coming from airline pilots, trained radar operators, law officers. ministers, doctors and apparently reliable citizens, even from air and military bases-led to his growing conviction.

During his 22 years as scientific consultant to the United States Air Force on its Project Blue Book, the name given to investigative reported sightings, he began to feel the matter called for more study.

He later became an outspoken critic of the Air Force's treatment of the question. Now, as Director of the Center for UFO Studies, he has become an activist in the fight to gain scientific legitimacy for the extraterrestrial phenomenon.

According to the scientist, there are approximately 100 sightings worldwide in each 24 hours. More than 15 million Americans have reported seeing UFOs. He estimates that two to three million of these could not be explained.

It is Dr. Hynek's expressed hope that the motion picture, "CLOSE ENCOUN-TERS OF THE THIRD KIND", may stir incentive for more thorough investigation of reported UFO sightings and close encounters, something in which he feels both the government and the science community have been lax in the past.

"I feel it will have an important as well as an exciting effect on the public, helping to make people aware that we are not alone," he declares.

### About The Locations . . .

From Wyoming to Alabama to a remote hillside in India, Hollywood veteran Joe Alves spent months in search of the proper scenic backgrounds for "CLOSE ENCOUNTERS OF THE THIRD KIND".

In Wyoming he found the bizarre but natural setting he sought for the film and one which matched the description in Steven Spielberg's screenplay. It was here, at "Devil's Tower", a unique mountain setting in a desolate area near Huelot, Wyoming, that he found the place so fittingly majestic and visually and emotionally inspiring for the backdrop where the climactic sequences were to take place.

From Wyoming, the company moved to its major location in Alabama and

back you up.

established headquarters in Mobile. On the outskirts of the city, a World War II dirigible hangar had been found after another cross-country search and was converted into a movie sound stage six times the size of Hollywood's most spacious stage. In planning the set reguired for the film's spectacular climax, it was found that the largest such space in Hollywood fell far short of accommodating it.

The hangar measured 450 feet long, 250 feet wide and 90 feet high. Its conversion and construction of the sets demanded staggering amount of varied

They included: 54,000 board feet (approximately 10 miles) of lumber; 19,000 feet of steel scaffolding, 29,500 feet of nylon canopy, 16,900 feet of fiberglass, two miles of steel cable, 5000 yards of cloth backing, 150 tons of air conditioning, 26,000 square yards of terrace concrete slabs and 7000 yards of sand and clay fill dirt. A total of 885 cubic vards of concrete fill were used, enough to build a structure comparable in size to the Washington Monument.

Housed in the hangar was extensive electronic equipment. It took 4,200,000 kilowatts of electricity to run all the equipment simultaneously, the equivalent of 35,000 amperes (use of all the electrical appliances at one time in the average home requires 70 amps).

The nature of the set itself and what transpired within it was, from start to finish, veiled in top secrecy. Only those required for the filming were permitted entrance after displaying proper identification badges, checked by an aroundthe-clock security force.

It was felt that, for maximum impact, the audience's exposure to these sequences should be when the complete motion picture is shown in theatres.

Away from the hangar, a spectacular sequence was filmed in Bay Minette, Alabama, a small town 30 miles east of Mobile, where hundreds of cattle, sheep, cars and trucks, together with 2000 "evacuees," joined in a continuation of the mass exodus scene.

From Alabama, "CLOSE ENCOUN-TERS OF THE THIRD KIND" moved to Washington, D.C. for scenes in which ABC Television's noted news anchorman Howard K. Smith played himself. Next, came a journey to distant India.

In Bombay and other nearby settings after months of negotiations, Spielberg directed stirring scenes in which Francois Truffaut, in his search for a solution to the mystery of the skies, observes the awesome spectacle of thousands of Hindus praying and chanting as they respond to the bewildering phenomenon.



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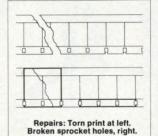
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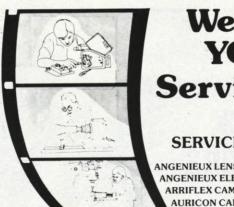
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# THE UNSUNG HEROES Continued from Page 70

changing shirts and jumpsuits due to the extreme humidity in the worst part of an Alabama summer. Vickie Sanchez took a personal interest in the story long before the movie commenced, and her efforts really sparkle.

Bob Westmoreland, my Makeup Artist, not only had to contend with the 5247 film stock in trying to compensate for its lack of warm tones, but he also saved my ass when an actor missed his plane connection and Bob Westmoreland filled in by playing one of the power linemen during the Muncie, Indiana, power outage.

An artist and real gentleman, Bob McMillen, timed all of our 70mm and 35mm release prints. He wasn't satisfied until we were. When I thought it looked great, McMillen saw ways to make it better.

I'm leaving out dozens of others who deserve equal credit and I hope they'll forgive me. From craft services to transportation to the nurses and welfare workers, makeup artists and caterers, location auditors, carpenters, and wardrobe masters. This is probably the most collaborative art form in the world. There is no such thing as *Auteur*. Without all these people movies simply are not made.

# MY CLOSE ENCOUNTER WITH "CE3K" Continued from Page 75

his magnificent new front projection rig, he's unhappy with the screen. It isn't nearly wide enough for the effects he has prepared, he tells me, and somehow he'll have to find a way to extend it another 30 feet.

There is yet one more reunion with another old friend and that is 2nd Unit Director of Photography Steve Poster (who was elsewhere with his unit when I was in Wyoming). With him is his wife, Kathy, who, having had her moment as an extra in the film without getting "discovered", has now hired on as an ET wrangler.

What is an ET? An Extraterrestrial, of course, and there are swarms of them in this picture. They are actually six and seven-year-old children of both sexes, clad in skin-tight gray-green body stockings, with tacked-on pot bellies, big wide-eyed heads and long bony fingers. They look rather like a girl I used to date.

Anyway, it's Kathy's job to herd these tykes onto the set when needed, and

watching her is a gas as she shepherds the group like some outer space Mother Goose, up to her navel in Munchkins.

Working under this intense heat and humidity in constant man-made fog 14 hours a day, six days a week, is a debilitating grind and the company is beginning to drag a little. All except for Steven, who remains bright-eyed and bushy-tailed and hasn't lost his sense of humor. The other exception is Vilmos, with whose awesome energy I'm well acquainted, having been with him on "DELIVERANCE".

What strikes me as ironical is how the lay public thinks of film production as a glamorous pursuit, whereas film people work long hard hours, often under the most trying conditions—such as these.

The scenes being filmed here at this point have to do with the arrival of the Mother Ship, but since this is a vehicle which will be created by Doug Trumbull and his staff, using mattes and miniatures, the only segment actually present on the set is the extreme lower part, or hatchway, which opens to reveal (in a blinding blaze of light) the extraterrestrials and their earthling "guests" who have been taken aboard the spaceship at various times in the past half-century.

Filming these scenes is enormously complicated because actors and extras have to react to things which they don't actually see, but which they have to *pretend* to see. Similarly, light must be seen coming from sources that can only be suggested at this point, such as UFOs buzzing the area in spectacular patterns.

In the middle of all this, a hurricane strikes. The cyclonic wind tears at the tarp, ripping the end of it down, and sheets of rain are driven onto the set. I am stunned by the awesome power of Nature raising hell in the midst of all these man-made cosmic goings-on, but the rest of the people take it in stride. They've been subjected to at least one such happening a week since they've been here and they accept it with a sort of "another-day-another-hurricane" calm. When all the going and blowing has died down, time is taken out to repair the much-battered tarp and shooting resumes.

Francois Truffaut has completed his role (at least until he rejoins the company for scenes to be shot in India) and so he throws his own farewell party before leaving Mobile. It's held at one of the local hotels and we're all invited. This is probably the last time that the entire group will be together (since several technicians are returning to Hollywood), so it takes on a significance over and above the host's departure.

Truffaut, small and shy, but obviously delighted at having everyone there to









wish him bon voyage, wanders among them like a child at his own birthday party—a vastly understated myth in his own time. What a sweet and almost saintly man he is—very much like Lacombe, the scientist full of childlike wonder whom he portrays in the film.

Within a few days it's time for me to take my leave, also, since deadlines call. I'm happy to leave the mugginess of Mobile, but strangely reluctant to bid goodbye to all these dedicated people who are making other-worldly magic in a former dirigible hangar. By now I feel, in an odd sort of way, part of what they're doing—if only by osmosis. Their blood, sweat and tears are on the film—but my hopes for a stunning success go with them.

### POST-PRODUCTION

Within a few weeks the company has returned to Hollywood and the intensive labors of post-production are in full swing. I keep in touch by means of long talks with Steven up at his home in Beverly Hills—which is itself like one big farout movie set (quite possibly because the interiors were designed by his set decorator from "CE3K").

After the long grind of shooting (and there will be added scenes to come) he has lost none of his energy or enthusiasm. Much has been written about his boyish grin and childlike delight in playing with the massive toys of film production, but beneath all that Huckleberry Finn there lies a will of steel and an unshakeable determination to turn out the best motion picture ever made. He is the first to give credit to every single person who had the smallest hand in production, but it is definitely his picture, and if it succeeds it will be because he has inspired all these talented people to give much more than they ever thought they had to give.

In the months that follow he is everywhere—in the cutting room, on the scoring stage, off in Bombay filming thousands of Indians, on a set, shooting inserts here and pickup scenes there to patch the holes. When I get the invitation from Doug Trumbull to visit his hushhush magic factory in Marina Del Rey, Steven is there, crouched next to the tank in which multi-colored clouds are being filmed.

The facility which Doug has set up especially to create the effects for this picture is a true dream scene. There are mechanisms never before seen on earth. There are magnificent miniatures of entire countrysides and cities with hundreds of homes each smaller than a dime, all of which light up. There is even

(possibly for luck) a model of the lovable "STAR WARS" robot, "R2D2", the size of a pencil eraser. And there is a beautifully detailed miniature of the magic Devils Tower, which turns me on all over again.

There are more than a hundred beautifully executed matte paintings and star fields. There are the fabulous separate effects that go to make up the spectacular light show in the sky put on by the UFOs in their greeting to the earthlings. Above all, there is unflagging dedication, incredible precision, breathtaking skill. And the irony is that on the screen most of this magic will go unappreciated because it is so thoroughly realistic, so completely believable.

Steven plunges into 14 solid weeks of work on the Todd-AO dubbing stage—mixing and remixing the multitude of tracks that will ultimately be fed through the fabulous Dolby sound systems in the theaters. We meet one final time midst the clanging and banging of lunch hour at Musso & Frank's restaurant in Hollywood, because that's the only time Steven can steal from the dubbing stage.

For the first time, I hear him express the slightest doubt about the project. "I hope the audience won't be disappointed when they see this picture," he says. "I'm afraid a lot of them will be expecting to see the sequel to 'STAR WARS', and it isn't that kind of picture at all."

## THE MOMENT OF TRUTH

During the three or four days preceding the World Press Premiere of "CE3K" I can hardly sleep, so compelling is my sense of expectation. When I finally find myself in the Samuel Goldwyn Theater of the Academy of Motion Picture Arts and Sciences and the lights begin to dim, I can hardly believe that the moment has actually arrived.

From the very first scene, and for the next two hours plus, I sit enthralled as the magic of this film sweeps across the screen. Throughout the narrative I identify completely with three-year-old Barry, the wide-eyed starchild who is so filled with wonder and ecstatic delight at the fabulous goings-on around him.

I remain in the thrall of this one-of-akind cinematic experience.

After viewing "CLOSE ENCOUNTERS OF THE THIRD KIND", neither I nor the Universe of which I am a part will ever be the same again.

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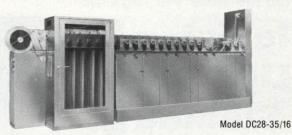
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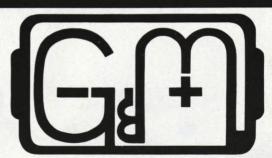
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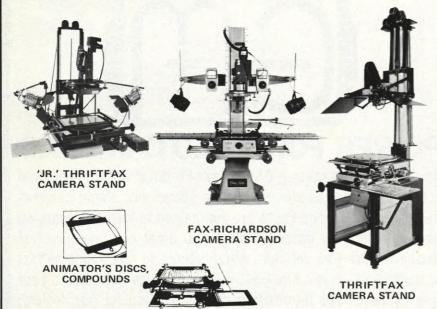
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# THE SOUNDS OF SILENCE Continued from Page 45

the chimney. Then they try to come up through the heater. Considering that we haven't seen them visually, what would they sound like? I tried lots of things—plastic hairbrushes (making movements like footsteps with them), suction cups and things like that. It finally came down to working with a board across a chair and a microphone on the floor, with a loose piece of wood on top of another piece of wood so that it rattled.

One of the hardest sounds to create was that of a screw coming up when they try to unscrew the grill of the heater duct and climb up through it. The camera comes in on an insert and we see these two screws unscrewing themselves. What does a screw sound like when it's unscrewing? That subtle sound took longer to get right than anything in the picture.

Actually, the touchiest part of that UFO invasion of the house sequence is its very beginning, when the little boy, Barry, is attracted by his toys doing odd things. Then he's led down to the kitchen area where he observes (but we don't) the little Extraterrestrial creatures watching him and playing with him.

There had to be a lot of little sounds in the kitchen and we wanted those sounds to be real, but we had to ask ourselves, "What would those ETs be doing in the kitchen?" They would be inspecting things, because they don't know what a fork is or an egg or water glasses. They would tinkle things together and play a little tune. Occasionally they'd drop something, because they can be clumsy, too.

The ETs, of course, don't vocalize. They don't talk like human beings, and you don't hear them walking; that is unnecessary. The only time we ever hear them move is when they land on the roof, as I said before. But even in that sequence we were able to do some cute things. For the stereo prints we were able to run them all over the screen.

Sometimes you can get an interesting effect by "phasing" an ordinary sound. That means treating it with the beating back of the identical sound upon itself to the point where it starts to kind of tear itself apart. That effect was used to good advantage for the helicopter sequences in this picture. We had to take the helicopters behind mountains and have the sound change accordingly, so I phased the sound (or beat it back upon itself) and then echoed it. When the helicopters come back out from behind the mountain, the sound is primary again—or "real", so to speak.

We didn't physically loop characters

very much in this picture, but Steve wanted the air filled with technical sounds in certain sequences, especially in the Box Canyon encounter area. There had to be sounds of equipment and voices coming through earphones and over speakers. They brought in a writer who wrote the technical dialogue and helped the dialogue editor place it correctly in the sequence, and it really adds to the authenticity.

There's an awful lot of communication going on in those scenes, plus the sounds of computer equipment, movie cameras, still cameras and video rigs. Added to this was the reverberation caused by the surrounding hills. All in all, there was more of this type of what we call "full-layer" sound than I've ever encountered in a single feature before.

Creating the sounds for the Mother Ship called for a lot of thought and discussion. We didn't want a pulsating sound, because we were trying to stay away from typical outer space pulsations. We went more for a heavy low-end sound, like the sound of a big heavy furnace, or a big swarm of mosquitos. We approached the idea of the Mother Ship with what we called "the sound of Detroit"—a big sound in scale with a craft that is supposed to be a mile across, but an odd and different sound.

Of course, the sound of the Mother Ship had to vary (and more markedly in the stereo version) every time it changed height or position or the camera moved around it. We couldn't stay with just a continuous, monotonous sound.

Adding to this was the music and especially the five-note pattern that is used for communication. When I first heard those notes on the stage, I felt that the effect was really special. In this sequence it's the combination of music and effects that makes the Mother Ship unique, heavy, monstrous and believable. The sound was constantly varying, but it was always big and ponderous.

One of the biggest problems in "CLOSE ENCOUNTERS" developed from the fact that it had to be recorded in stereo. That led us into considerably more work because we had to have direction for everything. If an object or person was crossing right to left, it had to be recorded right to left, but it had to be put into a position from which you could "swing" (or pan) it from right to left. If you don't do it right you get what we call "ping-ponging", where the sounds are bouncing around.

We were recording "true" stereo, in which you actually move the sound and dialogue. This takes much more time and much more planning in regard to the manufacture of the sounds and their placement in relation to each other. Each



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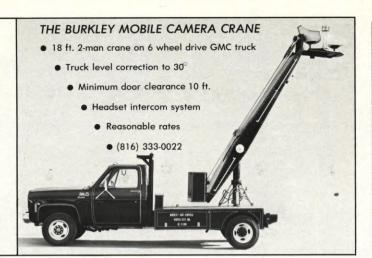
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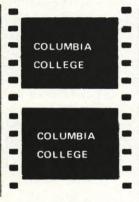


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keep the sound as clean as possible. Because the individual sounds are so separated on the screen, each one is heard more distinctly. You can't slough over anything.

Steve Spielberg is a very creative man, not only in his own field, but in every aspect of the film-making process right on through post-production, which is my field. He was very involved with me in my work, and we spent more time on this film in the discussion of sounds than I usually spend. I'm generally turned loose on a film and left alone a lot, following preliminary discussions. But here we had continuing discussions, and Steve lent constant encouragement.

Steve is the first one to encourage you to experiment and try something different. In fact, he's the first one to get in and play with you. He loves to sit with you at the dubbing panel, and he loves to get his hands on it and click knobs and everything. But it's not just a toy to him. He understands where everyone is atwhere they're all coming from, and he surrounds himself with that type of people. He's eager to get contributions from everybody.

We've been fortunate in being able to use the Dolby System in recording the sound for "CLOSE ENCOUNTERS". This new technology is a great help not only in recording the sound, but in reproducina it.

In addition to that, we've had the advantage of working on the finest dubbing stage in the world. There are very few places in Hollywood where you can record a true stereo picture and we were very lucky to be able to work in this one.

Also, I can't say too much in praise of my crew. As in any business, you're only as good as the people who work with you. I have a top crew, the best in town. Each one contributes individually and then we bring our ideas together-all of which show up on the screen.

I got very involved in working on "CLOSE ENCOUNTERS" and even after having been on it for such a long time. I still find myself clutching my seat when I watch certain parts of it. It's an exciting film, and that's why working on it was so much fun.

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# SPIELBERG SPEAKS ABOUT "CLOSE ENCOUNTERS" Continued from Page 59

at night-something that you just can't do with existing film emulsions and highspeed lenses. We haven't approached that state of the art yet.

QUESTION: It does seem ironical that with suitable landscapes actually in existence, you still had to build them in miniature, doesn't it?

SPIELBERG: We had to build them in miniature for several reasons. One reason is that I wanted strong light effects on the topography, on the landscaping, and it's completely impossible-even with the most powerful light known to man-to overexpose a general area of trees and ravines and boulders on a big scale. All that had to be done in miniatureespecially those light effects that represented direct tie-ins to vehicular miniatures. I was very concerned about making sure that if we flew something over, and that object had lights, there would be a visual relationship between the object and the landscape. If the object had lights, it would certainly set the landscape on fire. If the object moved 400 yards, the shadows would pivot around pine trees and bushes and rocks. The only light known to man that is that powerful is the sun-and it's very hard to get the sun to travel 97 miles an hour over a 400-yard area when the director calls "Action!"-so I was backed into the miniature concept.

# QUESTION: How extensively did you research the UFO phenomena-the sightings, that is?

SPIELBERG: I spent a year thinking about it, reading everything I could about it and interviewing people who'd had extraordinary encounters-airline pilots, air traffic controllers, police officers. I tried to interview the "unimpeachables", and when I was sufficiently excited about it myself, it took me about a year to rev up my own enthusiasm for a big special effects movie before I got involved in writing the script.

# QUESTION: And did you realize what you were letting yourself in for?

SPIELBERG: I never do. I have a way of lying to myself. I get involved in projects that from the outset look difficult, but the summit is in sight. Then, all of a sudden, months later, when I'm too far past the point of no return, I'm an ant clawing at the Matterhorn



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## "CE3K" SPECIAL EFFECTS **Continued from Page 83**

The CE3K script called for several scenes to occur on a hill called "Crescendo Summit", where several UFO sightings would occur. Since we planned to stage some complex lighting effects and needed very particular camera angles on a curved section of roadway, we decided to shoot on a set under controlled conditions. For this we built a totally new 8" x 10" front projection rig with 65mm Panavision camera, and a 100 feet x 38 feet portable front projection screen. I believe that this was the largest movable process screen ever built. The projector was also quite easily movable and we built a special mount so that the entire rig fit on a Chapman Titan crane. This allowed extreme flexibility of movement and I'm proud to say that the screen and projector were always in place for a setup with plate aligned and balanced well before the lighting was set. In today's filmmaking nobody has the patience to wait for process shots, so we were happy that our portable designs never slowed down shooting.

Dealing with more than 200 effects shots simultaneously presented enormous problems of controlling, organizing, and scheduling the progress of thousands of photographic elements. Effects editor Larry Robinson handled this task with great expertise borne of years of experience on many effects oriented films. "CE3K" constantly required very close editorial integration of work between Future General and the main unit editorial staff headed by Mike Kahn, so Larry's unique talents for keeping close track of every shot, every frame, and every trim or change throughout the film provided the invaluable information needed so that all our work fit and matched perfectly and no energy was wasted shooting effects for the cutting room floor.

I would suggest that anyone interested in making heavy effects films of this magnitude carefully consider the area of special effects editorial supervision-an extremely critical area that I believe deserves to be considered as important as the job of the main unit editor.

The photographic effects for "CE3K" are, ultimately, images on film created by the fine eye and vision of a photographer. Photographic effects Director of Photography Richard Yuricich is, in my opinion, the most gifted photographer working today. Richard and I worked closely throughout the production keeping involved in every detail-with a conscious attempt at blending the old and the new. We felt that no matter how many slick electronic systems, new cameras, and special gizmos we could think up, ultimately "CE3K" could not be realized

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without the full understanding and incorporation of classic aesthetic values of composition, lighting, action, and timing. Richard and I personally supervised all 65mm live action shooting which involved effects, so that our ideas as to how each shot would finally be completed could be considered, and these ideas would carry through all phases of work. Without Richard's attention to every exposure, every element, and every aspect of so many shots, "CE3K" would have been impossible.

It has been frustrating for both Richard and myself to hear people compare films according to the number of shots which include special effects. This is ridiculous. Quality was our goal, and the best effects are the ones the audience doesn't see. There are spectacular shots, of course, which were obviously only producible through the use of special photographic techniques, and it is these shots which always bring the question "How did you do that?" When I hear that question asked by fellow photographers, I know that we did the job right, and the real credit belongs to the entire crew who tirelessly gave of their talent to realize a truly creative vision-"CLOSE ENCOUNTERS OF THE THIRD KIND."

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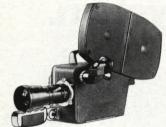


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# LIGHTS! CAMERA! ACTION! Continued from Page 65

because he's not going to be able to put the lighting on the people. (It could be done, I suppose, but it would take forever—ten or fifteen years, I would think, if you really wanted to create every effect on the people.)

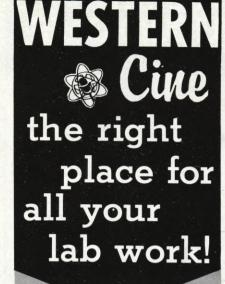
Steve is extremely conscious of quality, which means that whatever could be done for real we've had to do on the set. The problem is that we've had to imagine how the effects are going to be, when we don't really know, at this point, what they're going to be. So we've really just been second-guessing what Doug is going to do. We've had no locked-down designs because Doug is constantly working on them. I believe they are still coming up with some ideas regarding the spacecraft and all of that.

Anyway, I've been basically concerned with lighting effects on the people. About 90% of the observers who claim to have seen UFOs have reported that the light coming from them is so bright that they could hardly see. It really has a blinding effect on people—and this is what we've tried to create. In practical terms, it's meant four or five stops of overexposure on the people. Which is easier said than done, when you consider my earlier statement that from 60 or 70 feet high one Brute hardly has a measurable lighting effect on the ground. That explains why we've had to put at least three Brutes together to get any effect that you can see and why we've had to use high-speed lenses.

Our exposure many times was around T/1.7 and we had to be very careful with the focusing—where to put the focus, that is. I imagine that our problems have been similar to those Kubrick had when he was shooting "BARRY LYNDON" and he wanted to shoot with a true candlelight effect, but had only four or five footcandles of light. He had a depth of field that extended from maybe 3 feet to 3 feet, 2 inches. In cases like that, you really have to be very careful with the focus.

Of course, someone will ask, "Why didn't you push the film?" Well, our problem really was that most of what we shot might have to go through a second generation or even a third generation. So, from the very beginning, we decided that in order to get the best quality into the negative, so that it would better lend itself to optical effects, we would not push anything that we shot.

Most of the sequences that are to include effects have been shot on 65mm film—and many people are not aware that 65mm film is still available. I've been



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told that Eastman is going to discontinue its manufacture because 5247 is so good that it will make 65mm obsolete. Still, if you talk to many of the opticals people, they will tell you that the old 65mm (which is 5254) will give you better quality than 35mm 5247. Doug Trumbull maintains that the larger the film format, the bigger the sprocket holes, which means better registration for special effects.

A special problem of shooting in 65mm is that our high-speed lens for that format is only about T/2.8. This means that every time we change over from 35mm to 65mm we need more light. Shooting in 35mm we can get by sometimes with 12 or 14 footcandles, but when shooting in 65mm we need 40 footcandles.

Before actual filming began on the picture, we did weeks and weeks of test shooting to find out how to create certain visual effects. I'm sure that many of the people who see the picture will notice that we used fog almost 90% of the time throughout the film. This is because fog makes light rays visible. We've been working with two or three of the big Mole-Richardson fog-makers on the set, plus some of the smaller ones that we use just in front of the camera. By shutting all of the doors and windows, we've been able to fill the whole huge set with an even level of fog which is not visible to the camera lens, but which defines the light rays.

We've had to use many, many spotlights, and here some of the new HMI lighting equipment has been very useful to us. Our new 4000-watt spotlights are excellent, not only in terms of light characteristics, but also in regard to the amount of footcandles they put out. Sometimes we need 100 footcandles coming from 100 or 150 feet away, and many times we have to use colored gels on them, which cut off a lot of the measurable light. Some of the darker gels cut off as much as two stops of exposure.

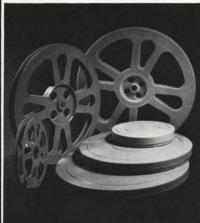
Probably the most effective lighting in the picture-or, at least, my favorite-is that used to create the dazzling effect when the Mother Ship opens. You get the feeling that there are millions and millions of footcandles of light coming from the spaceship. In order to create that effect, our art director made the opening of the ship out of mirrors, and all we had to find out was where to put our HMI lights. We used only four HMI spotlights to get the effect. These were the first scenes we shot on the big set and nobody could really tell how the effect was going to look on film. We shot it on 35mm negative. using high-speed lenses, with an exposure between T/1.5 and T/1.7.

What made the light rays show up in



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the fog? I think it was mostly the breaks in the mirrors, or even the dirt spots on the mirrors, the footprints. Those elements created a sort of pattern for the light. I think that in order to show light rays, you have to have a discontinuation of the light here and there. If you don't have those breaks (or those dirt spots in the mirrors) then what you have is actually an even spotlight effect.

In this case, our spotlights were beamed in from various angles, and the rays were reflected from the mirrors at angles complementary to those. The result is light bouncing around from a variety of angles to create a dazzling effect.

As I said before, our catwalks are 60 or 70 feet above the ground and we knew that in order to get certain really good color effects, they would be just too far away. That's why we designed an overhead crane system to run the entire length of the floor. We built some rails and a hanging basket into which we can sometimes put three or four electricians with moving arc lights. We've used it to create many of the interesting effects that are seen when the UFOs are moving across the stage above the people.

There were times when we found that even three Brutes combined wouldn't give us the light effect that we wanted. Then, in order to get an exposure, somebody (I don't remember whether it was Steve Spielberg or my gaffer) suggested that we burn a hole in the center of the gel. Well, we didn't actually have to burn it ourselves; we put up the gel and it was burned by the heat of the lamp. We found that we could create an interesting effect by having the right color around the edge and a hot spot in the center that would sort of burn out the faces.

The set which has been built in this big hangar here in Mobile, Alabama, represents the so-called "Box Canyon" area described in the script-actually the other side of the Devils Tower. Our protagonists start climbing the mountain from the west side and, after climbing about 700 or 800 feet, they see a light glowing from the other side. As they climb higher and get closer, what they actually see is something like a huge sports arena. It's three times as long as a football field and twice as wide. It is lit by stadium lights and around its edge are cubicles occupied by instruments, computers and the technicians who run the instruments. The fourth side of the stadium actually extends another 100 feet into the open area of the hangar. We used that extra hundred feet to build a runway with lights, like an airport runway. It was built in forced perspective, so that the 100 feet would actually look like a

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However, since most of our shooting has been done during the daytime, we've had to tent in that fourth side of the hangar with blackout tarpaulins which we hoped would be strong enough to stand up against the storms of the current hurricane season. Needless to say, it hasn't been strong enough. At least once a week a hurricane has blown away our tent, causing a delay in production of 24 to 26 hours, which is how long it takes to rebuild the tent.

Every single scene in this picture has created a new problem. For example, whenever we're using fog (which is most of the time) we can't use any back light, because it would show up in the fog. We've had to switch over to side light or even front light. When you're shooting a low-key scene, you can imagine how hard it is to get the effect with front light.

Speaking of the lighting equipment used in the Box Canyon set, it is unfortunate that we were able to get only four of the HMI spotlights in Hollywood; that's all there were. But our lighting plan called for at least 20 spotlights to ring the set. I remembered that an assistant cameraman I know had said he had worked with Bob Surtees on "A STAR IS BORN" and that Bob had managed to get some spotlights in San Francisco. I went to San Francisco and checked them out. They looked like they might be effective, so we had ten of them shipped to Alabama.

The real problem was to mount them on the catwalks, because they were very old-fashioned, very heavy lights. The construction department said it couldn't be done without reinforcing the catwalks. Anyway, we managed to mount six out of the ten-only to find that they were so heavy we couldn't pan them; we couldn't build the right kind of bridge for them. But then Doug Trumbull came up with an ingenious idea. He suggested rigging mirrors in front of them and panning the mirrors as though they were follow spots. So we put six mirrors in front of six spotlights and six electricians learned how to move them. They were not true follow spots. In fact, they were pretty dirty lights. If you looked at the beam you could actually see the flame projected on the floor. But Steve liked them and they were the only ones that did the job anyway.

We've been able to get some very interesting dimming effects with the Brutes. At times we had eight Brutes with shutters on them and those shutters were electronically controlled. My gaffer could control them on cue and that's how we were able to get a nice orangey effect on the people. Using the electronic shutters, we were able to make very nice soft dissolves from one color to another color.

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We have two identical huge hangars here in Mobile, so Steve came up with the idea of building another set in the other hangar. It's what he calls "Crescendo Summit" (a spot where the UFOs put on a spectacular performance in the sky). The reason for building that set was that we wanted to create our own background behind the hilly road. Our art director had spent months looking for just the right background on the Indiana countryside, but was unable to find one. So Doug decided to build it in miniature and it's amazing how realistic it looks. He photographed it in 65mm and used it as a plate in his front projection system so that we could project our own dusk all day

Doug needed that kind of control because he had a lot of complex special effects going on in the sky. In one case, he had an amazing lighting effect going which he did not want to do optically, because, in order for it to work at all, the people in the live action part of the scene would have to react with precise timing to what was going on in the sky.

Our front projection screen is 100 feet wide, but most of the time it hasn't been wide enough and Doug has had to extend the width by means of a smaller screen about 30 feet wide. It is set closer to the camera on one side and he's really had to work hard to balance the intensity of that small screen to the big screen. He did it with neutral density filters.

Our main technical problem in shooting the front projection scenes has been that of holding both the foreground action and the background scenes in sharp focus. The background plates are so well done that it would have been a shame to lose their effect by not being able to carry the focus. As a result, we've had to work with about 200 footcandles of light. Considering that we didn't build any catwalks or stands for our lights in that second hangar, it has been very difficult to place that much light where we want it. We've had to mount our Brutes on cranes and our electricians have had to stand on those crane platforms for hours and hours between takes.

Moving those lights when necessary has also presented tremendous problems. With an average of four lights on each of four cranes and forklifts, moving and resetting those lights has taken an incredible amount of time, especially with all the flags and gobos involved.

But our biggest problem here in Mobile has been the climate. We are shooting under extremely hot and humid conditions, which try the patience of our people-especially the electricians working up on those 100-foot-high catwalks in temperatures of probably 130 degrees,

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About half of the shooting schedule has been devoted to filming in the Box Canyon set, even though those sequences account for only about one-fifth of the running time. The other four-fifths of the film has been shot in Wyoming and on exterior locations in Mobile-and even though it's 110 degrees in the shade out there, every time we've been able to get outside the hangar it's been like a vacation to us.

One of the favorite locations where we've already shot was the railroad crossing where Richard Dreyfuss has his first experience with a UFO hovering above him. The effect required, that of blinding multi-colored light from above, was one of the most difficult to achieve in the whole film. We had made some tests in Hollywood, but had never gotten a really satisfactory result. By the time we started to shoot we still didn't know how we were going to do it. As it turned out, we had to shoot it twice in order to get it right. The first time we did it with Brutes, because we thought that the footcandle level was more important than the characteristic of the light, but it didn't work. We had to shoot it again with HMI lights, which gave us better control of the beam and a better effect. We also had better cooperation from the weather the second time around. When we shot it the first time there was too much wind and it dissipated the fog, but on the second night the weather was fairly quiet.

The location we found was really crazy, because it was a railroad crossing that was actually in use, with trains going through all during the night. Every two hours there would be a train going through, which meant that our lights (which we had up on a forklift) had to be moved out. A railroad official would come by and say, "Fifteen minutes from now a train will be coming." Then we'd have to undo our cables and pull back the lights, cameras, everything-losing about 45 minutes each time.

A combination of fog and arc lights has been used during 95% of the shooting. During the past several years in Hollywood we've really forgotten how to use arcs, because everybody has been using smaller and smaller units. Ordinarily we try not to use arcs anymore because of the smoke and weight and the expense of additional electricians and crew. But this is a film that requires going back to using all the old techniques and equipment, because that's the best way to



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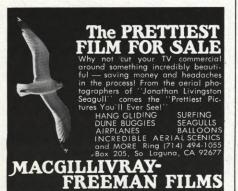
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shoot it.

We've already had setups on this picture that required 40 Brutes and 60 10Ks operating at the same time. On one setup we had, I think, 40,000 amps coming from three or four different sources. We had the city of Mobile build us new transformers near the hangars, but we still had to bring in three 10,000 amp generators from Hollywood. The lighting has gone to wild extremes. For example, on the airport sequence we used six Brutes and all of our wind machines. Then we moved inside the airplane and shot the interior with six inky-dinkies, using about four footcandles of light.

We've had lots of complicated scenes in the picture, but a few simple scenes. also. For example, in the scenes in which Richard Dreyfuss is seen driving his truck, the only light we used to illuminate him was a so-called "intensive" light that was built right into the cab of the truck and gave off 12 to 15 footcandles. We beefed up the high beam headlights on his truck by means of our own battery unit in the back of the truck. For the headlight effect we used 2000-watt quartz lights.

The whole Box Canyon sequence was presketched in storyboard form and according to our schedule we had to do four sketches a day. But this schedule was followed for only the first three or four days. Then Steve discovered that we were able to do more than four sketches a day and he came up with more and more ideas. Soon we were shooting eight sketches a day, and then he came up with even more ideas. As things stand now, we are shooting an average of 10 setups a day.

On this picture I'm really having to use everything I've learned since the start of my career. This includes the experience I've gained in shooting commercials. I've also had to rely on the tests I shot for two months with Steve, after which we went through them and selected the effects we wanted to get.

Working with Steve is not exactly easy, because every single morning he wakes up with a dream he's had or an idea that's come to him in the night. Then he'll want something new, something different from what we've established with our tests. But you have to go with him, because it's very exciting to try to follow him and get the new effect that he wants. He also watches films every night. He brought along a 16mm projector and has films shipped out from Hollywood. Looking at those old classics triggers off even more new ideas.

When my gaffer heard that this was going on, he got a little upset and said, Steve, stop looking at those pictures and we'll be alright!'

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# PRODUCERS POINT OF VIEW Continued from Page 49

The basic subject matter of vehicles and beings from outer space has been approached in films before, but always in a patently science-fiction sort of waywhereas, we're asking our audience to believe that what they're seeing is a fact thing. We've tried to keep the story as realistic as possible and the actual UFO manifestations are grounded in a sort of composite of experiences distilled from reading numerous factual reports. This, plus Steven's imagination. But I think the effects work because the drama works and because the effects don't look like effects. They are very realistically done.

There were some script problems on "CLOSE ENCOUNTERS", but the main production problems stemmed from just the sheer massiveness of the project and the fact that we were breaking into new terrain with the special effects. Because the action takes place on earth, almost all of our effects were combinations of live action and opticals. There was very little opportunity to resort to just models.

It's hard to generalize on the subject of how a producer works with a director, because a producer actually functions according to a specific director's abilities and needs. Basically, you have to do whatever you are able to do to help him make the best possible film. Sometimes that's just a matter of lifting the entire administrative burden off of his shoulders. Sometimes it means pushing him. Sometimes it's protecting him. It's a whole new ballgame each time out.

Steven is unique in that he likes to be involved in every aspect of not only making the film, but marketing and merchandising. I imagine that it must have been exhausting for Julia to work with him on the actual shooting of the picture. But she's also got incredible amounts of energy-which is why I think it was a particularly good choice we made between ourselves for her to work with Steven. She's very well suited to it temperamentally.

I've actually been working closely with Steven only during the post-production phase, but what I find unique about him is his endless energy and bold imagination. My own imagination has been exhausted for some time, but I've never seen Steven exhausted. The final dubbing was done just a couple of days ago, but he's still making last-minute changes. He never stops thinking. He never puts it to bed. He keeps challenging his own work and trying to make it better.

Another of his unique qualities is his ability to express himself. For example, he isn't trained musically, but just listening to him talk to John Williams is proof of his outstanding ability to communicate. He articulates well even without a technical vocabulary. He doesn't need one. He can express exactly what he wants and get it.

His energy is really boundless. After months on end of working nights and weekends, everybody else is falling asleep on the dubbing stage, but Steven can be sitting in a restaurant afterwards and feel that he has to get up and shoot pool. He needs constant stimulation, constant activity. I've never seen his energy flag.

Steven is a thrilling filmmaker because he knows how to involve an audience emotionally. The last 40 minutes of 'CLOSE ENCOUNTERS" are just mind-boggling. Even though I've seen the picture over and over again during this post-production phase, I still get a thrill out of that last 40 minutes.

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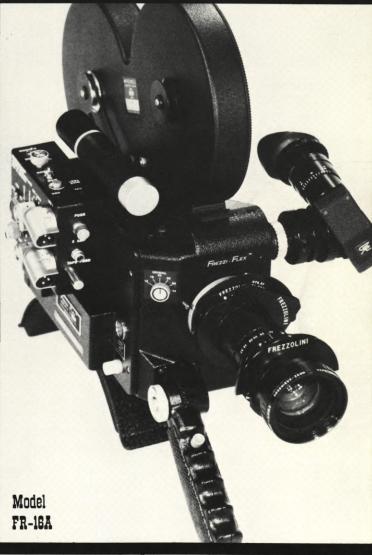
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